The Builder.

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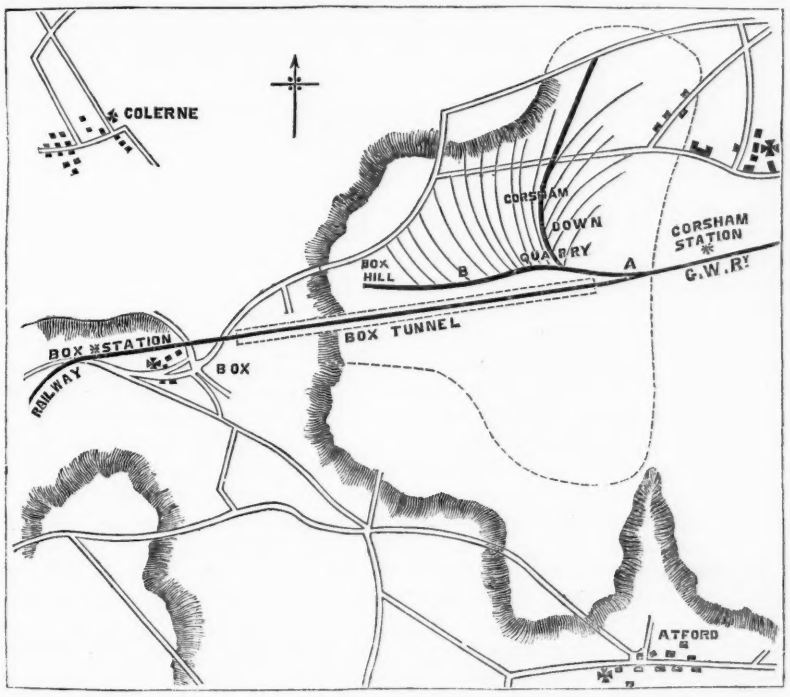
Box-Hill and its Bath Stone Quarries.

BOX TUNNEL, that great supererogatory work of Brunel, cuts a straight line, running nearly due east and west, through one of the most important members of the Jurassic group of strata in England, geologically named the Lower Oolite, but here more commonly known as Bath or Free Stone. Box-hill itself forms the centre of the oolitic district, roughly triangular in outline, and comprising an area of about three square miles. Many parts of this and the neighbouring locality have been worked for stone, with more or less activity, from a very early date; but, though quarries were opened here as many as 300 years ago, it was not until after Brunel's tunnelling operations had demonstrated how large an amount of good material might be got out of the district, that the workings began to receive any adequate development. The construction of the Great Western Railroad, however, gave a great impulse to this previously limited industry, and the remarkable facilities for transit which its completion afforded soon attracted the attention of practical men. Indeed, it could hardly have been otherwise: here was an almost unlimited supply of a material whose usefulness for many constructional purposes had been established by use; and cutting almost through the sites of future workings was this great broad-gauge line. The present proprietors of the Box and Corsham Quarries, Messrs. Randell & Saunders, were not long in seizing upon the opportunity which these circumstances appeared to offer for the establishment of a large trade, and in the year 1845 they commenced the undertaking which has since attained its present large proportions. Having recently paid a visit to these quarries, where we spent some pleasant hours watching the work and investigating the methods in use for getting out the stone, we propose to describe what we saw, and explain to all whom it may interest the manner in which this building material is obtained. Nothing can be more unlike the ordinary experiences of mining excursions than a visit to the Corsham Quarries. Those who, like ourselves, have suffered in various parts of the country from hot, damp, and dirty scrambles through underground passages, whose narrowness and darkness were both alike incapable of the slightest alleviation, either by persevering stooping, or liberal illumination, will have a sense of surprise and pleasure when they first set foot within the wide, lofty, and well-ventilated roads which ramify for miles through the bowels of Box-hill.

Before conducting our readers into the workings, however, we will first examine a little into their general lie and disposition by the aid of the accompanying map, a few minutes' attention to



which will probably save us, by and bye, from that feeling of utter bewilderment too often the visitor's only companion in the subterranean regions given over to the miner's craft. All the workings which have yet been opened are situate on the northern side of the tunnel. They are divided into two districts, called respectively the Corsham Down and Box-hill quarries, the former occupying the eastern, and the latter the western, side of the hill. Entrance to both of these is obtained at the Corsham end, where the main road (A) joins the Great Western Railway on a level; a communication between the two sides being established by means of the road (B), along which all the Box stone is hauled to the railway trucks. Both these roads run parallel with the tunnel, the former debouching, as we have seen, upon the main line, and puzzling visitors strange to the locality with the apparently anomalous phenomenon of a double entrance to Mr. Brunel's great work. The dimensions of this approach almost rival those of its neighbour, permitting the ingress of two rows of waggons for some distance, but presently narrowing to one line of broad-gauge rails, which are continued as far as the first of the Corsham workings, where they terminate opposite the discharging-platform, to be more fully described hereafter. Greatly as these ample roads contrast with the straitened passages of ordinary mines, their size is not only convenient, but profitable. Unlike coal or other similar minerals, there is no object here in keeping the excavation within the narrowest possible limits. All the material taken out is commercially valuable, and hence the wealth of space throughout the whole quarries so pleasantly surprising to those whose underground experiences have previously been confined to some less favoured locality. From the main roads the workings spread northwards and westwards, as shown upon the plan, into complex reticulations of great and yearly-increasing extent, all of which communicate by means of gently-falling tramways with the discharging-platform. The utilization of gravity as a means of locomotion is carried out with much completeness throughout the works. In drawing from the Box side horses are employed to haul the stone only through a portion of the distance; more than half of it being accomplished by gradients. The natural disposition of the strata has greatly assisted in laying out the quarry thus; and nature is supplemented by art in the arrangements for economizing horse-traction, wherever such economy is at all practicable.

We shall make no attempt to follow the windings of all the workings shown upon our map, since the methods employed for getting stone are everywhere similar, and we shall learn more by confining our attention to one spot than by rambling with desultory aimlessness through the whole of the quarry. Changing our point of view, then, from one of general observation only, let us enter the right-hand one of the two tunnel-mouths which meet us on our walk down the main line from Corsham. Pausing inside for a few minutes to go through the preliminary ceremonies of lighting candles and tallowing our fingers—melancholy rites only too painfully characteristic of all subterranean explorations—we presently get our eyesight, and are able, without risk of stumbling, to step out on our journey.

A hundred paces along the main road suffice to dispel any apprehensions of discomfort that we may have anticipated from ordinary mining miseries. The path is dry enough, wide enough; and, above all, there is air enough, and to spare. Instead of the sluggish current of hot and carbonized air with which one fights for breath among the stalls or headings of a coal-pit, there is here a cool breeze flying past us at a great rate on its way to the distant workings towards which we are progressing. Those of our readers who are not acquainted with the methods commonly in use for the ventilation of underground works will probably be glad of such an explanation of the first principles on which these depend as will enable them to understand the reasons for the efficiency of the processes in action here.

The well-known difference in the specific gravities of warm and cold air is made use of in all mines for the production of a current through their workings. Thus, if two pits be sunk at some distance apart, and then connected at the bottom by a passage, any rise in the temperature of one shaft will be followed by an upward movement of the air contained within it, and a corresponding downward flow in the other, through which the colder atmosphere rushes to supply the partial vacuum that would otherwise be formed by the ascent of the rarefied column in the upcast. Now, if we suppose all the workings of a mine to be situate somewhere between an upcast and a downcast shaft, this simple principle can be made sufficient to keep the workmen well supplied with oxygen. In all collieries the natural warmth within the pits generates a current of more or less intensity, though this is seldom strong enough to fulfil the requirements of good ventilation without artificial assistance. Hence it is usual to heat the upcast by means of fires, which, increasing the volume and decreasing the weight of the atmospheric column within it, assists in producing a sufficient draught. At Box, however, no artificial stimulus is needed to keep up the circulation. The downcast shaft being here represented by a wide and lofty road entering the hill upon a level, admits air so readily, that a few "upcasts," here and

there communicating with the surface, suffice to establish an abundant current. Nowhere throughout the whole quarries is there anything approaching to a scant supply of oxygen; and the visitor is never conscious of breathing under conditions at all different from those of ordinary life, though he is often likely to be made aware of the rapidity with which the wind traverses these subterranean passages by the coolness of his person, and the difficulty he will sometimes find (in the larger roads especially) to keep his candle from being blown out by the draught.

A walk of about a furlong brings us opposite the point where all the stone taken out is loaded into railway trucks, a process effected with great simplicity and economy. The single line of broad-gauge rails which we have hitherto followed stops here, but it is met and accompanied through the last few hundred yards of its length by a narrow tramroad about 2½ feet gauge, running parallel with the main line, but laid at such a level as to bring the little trollies forming its "rolling stock" to the same height as the larger waggons, into which the blocks are readily shifted by means of two powerful cranes, without any lifting whatever. By this arrangement, a large amount of work is got through in the course of a day, one crane alone being capable of loading up some 6,000 feet of stone, or nearly 400 tons in ten hours. This discharging-platform, as we have previously named it, is in direct communication with the whole of the workings, every one of which has its own branch of narrow-gauge rails; and along some of these feeder lines the small trucks are constantly passing with their burdens. Immediately opposite where we now stand is an entrance to the first of the Corsham side workings, lying a little off the main road, and approached by a narrower passage cut almost at right angles to it. Turning into this, we shortly find ourselves in a large open space, lighted with tolerable brilliance by many candles, and occupied by a group of workmen all busily engaged in various quarrying operations—some sawing, others hoisting; some prizing great blocks on rollers towards the trollies in waiting, and others manning the handles of a crane occupying the centre of this little amphitheatre. We will make this working our pattern card; in describing it we describe all its fellows, and there is no reason to prolong our walk for the sake of seeking information which can be had here for the asking. One uniform system of getting stone prevails, suggested and occasionally slightly modified by the natural peculiarities of the rock itself, which it will be necessary to understand before we can gain any definite notion of the object to be attained by the different processes we see going on around us.

Like almost all other stratified deposits, the Bath oolite lies in "beds," as they are named both by geologists and quarrymen. In other words, the total depth of the stratum is made up of many successive layers of stone, varying very much in their respective thicknesses, and separated from each other by natural joints or "partings." In the oolite these partings are extremely thin; they appear as if marking certain periods in the formation of the rock, during which the process of deposition was arrested, and the stone allowed to harden before fresh accumulations of calcareous sediment were thrown down upon it. Out of the whole mass of freestone forming the core of Box-hill, only those beds are quarried which are known to produce good stone. The number, lie, and position of these were ascertained with considerable accuracy during the progress of the tunnel, whose shafts, penetrating through the whole formation, afforded the best possible opportunities for an examination of its constituent members. The average depth of the workable beds varies from 8 feet to 30 feet, and their respective thicknesses range from 6 feet to 1 foot. The uppermost of them is only about 10 inches through, and this is called the "picking bed," for a reason which will become clearer as we proceed. The actual getting of all minerals differs greatly with the character of the materials to be dealt with, depending of course upon their respective hardness, softness, toughness, or friability. Granite, for example, is torn by main force of gunpowder from the parent rock; while coal is won by the pricker and the pick. Portland stone—a harder form of oolite—is blasted out, like granite, in shapeless masses, which are afterwards reduced to form by the chisel and bar; but the freestone, from its soft nature and the regular occurrence of the joints, to which we have alluded, permits a very different mode of treatment. Those of our readers who are acquainted with the methods ordinarily employed by colliers will understand our description the better for being told that these processes represent an almost exact inversion of those in use at Box and Corsham. In the former every successive measure is thrown down from above by continued excavations at the floor level of the mine, which, removing the support from one mass of mineral after another, suffers each to separate itself by its own gravity from the overlying strata at one of the partings, which characterize the carboniferous equally with the oolitic formation. In the latter, "undercutting" is replaced by what we might aptly designate "overcutting;" and operations precisely similar in principle, though different in detail to those employed in the winning of coal, are commenced at the roof instead of at the floor of the mine. The accompanying sketches will help to render our explanations more intelligible. Here

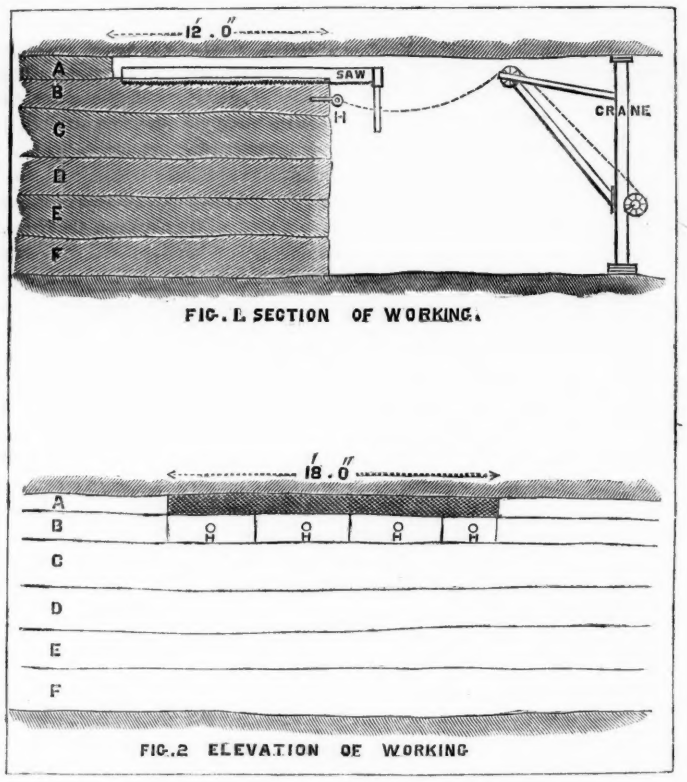


FIG. 1. SECTION OF WORKING.

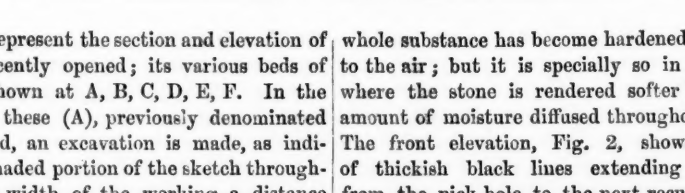


FIG. 2 ELEVATION OF WORKING

Figs. 1 and 2 represent the section and elevation of a working recently opened; its various beds of stone being shown at A, B, C, D, E, F. In the uppermost of these (A), previously denominated the picking bed, an excavation is made, as indicated by the shaded portion of the sketch throughout the whole width of the working, a distance averaging from 18 feet to 30 feet: a dimension wholly dependent on the nature of the overlying stratum or "ceiling," the strength of which regulates the size of opening that may be worked without fear of settlement. In these quarries the roof is generally very strong, and the system of commencing to excavate in the topmost member of the beds affords an absolute security from falls—that most common and fatal of the miner's many dangers. The removal of only 9 or 10 inches of material beneath the ceiling deprives the overlying strata of support as effectually as cutting away all the stone from roof to floor would do; hence, should there be any tendency to settle, it is always shown at a period when human life is not exposed to its influence, and when an actual drop could do no possible injury to the workmen.

The picking is effected by means of tools shaped something like an adze, the heads of which can be shifted on to longer handles as the work gets out of reach; and thus the men carry the narrow hole shown upon the section a distance of about 12 feet back into the rock. This completes the first process; and an entirely new agency now comes into action for the final removal of the blocks.

Every one at all acquainted with Bath stone knows that it can be readily cut up by means of an ordinary saw. This is the case, even after its whole substance has become hardened by exposure to the air; but it is specially so in the quarry, where the stone is rendered softer by the large amount of moisture diffused throughout the beds. The front elevation, Fig. 2, shows a number of thickish black lines extending downwards from the pick-hole to the next recurring "parting." These represent saw-cuts; and they are made by a tool differing little in shape and appearance from an ordinary "cross-cut," but having a handle at one end only. The position of this saw during work is shown upon the section; and no further explanation is needed to make its operation clear to the most unmechanical reader. After the bed has been divided down to the natural joint, and the blocks thus separated from the parent rock on all sides but one, levers are introduced into the parting, and the whole detached by forcibly breaking off at the back, when the stone is ready for immediate removal to the discharging-platform. We have already mentioned that a branch of the narrow-gauge line runs through each of the workings, connecting them with the railway waggons; and it is now time to speak of the manner in which stone is loaded on the trollies after being quarried. Immediately after opening out a face of work, a five or ten ton crane is erected in such a position as to sweep it all over. One of these is shown in Fig. 1, fixed in bearings let into both roof and floor. These cranes are ingeniously contrived to suit variations in headway, such as are caused by differences in the depths of the valuable beds. The post is telescopic, being capable either of sliding out to the loftiest, or contracting to the lowest, space afforded. A large expense in continual alterations

is thus avoided, and the periodical shifts from worked-out to new localities is made without trouble or loss of time. After the blocks have been loosened a lewis bolt is let into the face of each stone at H, and the chain of the crane made fast to it: one piece after another is thus dragged out, assisted by the crowbars of the men, and falls to the floor, whence it is soon conveyed by the trollies to the discharging-platform. The next and all the remaining beds are taken out by a modification of the processes which we have just described. By the removal of the layer immediately below the picking-bed sufficient space is obtained to allow the workmen an entrance

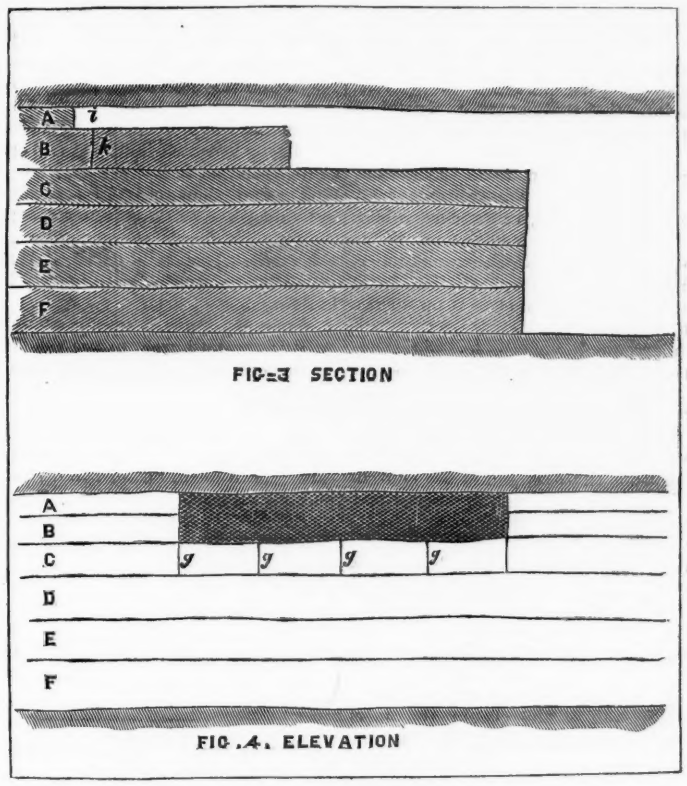


FIG. 3. SECTION

FIG. 4. ELEVATION

under the roof; and Figs. 3 and 4 show the manner in which they make use of this advantage. Vertical cuts (g, g, g) are again carried down to the next succeeding parting; but, as there is now room at i to work the saw transversely as well, another cut (k) is made, which, separating the blocks from their hinder attachment, renders any further breaking off behind unnecessary. Meanwhile the cutting is continued in the picking-bed, and stone got out in layer a, just in the same way as before; every thing below this point, however, is quarried with all sides sawn excepting those abutting on the natural joints. Hence there is very little loss or waste; each piece comes out square, finished, and ready to pass at once into the hands of the dealer or builder. Continued repetitions of these several operations produce a terraced profile in the workings; and this is the form in which they are usually found by the visitor. At such times their aspect is quite picturesque. On all sides there are lights, which, unlike those of the dim colliery lamp, whose rays are all absorbed by the black mineral they vainly strive to reveal, are reflected from the white surfaces of stone, and give a really respectable amount of illumination.

Each of the platforms is occupied by groups of men, all healthy, cleanly, and cheerful-looking fellows, busily occupied either with pick, crowbar, or saw, and shouting occasional directions one to another in a tongue whose determined provincialism none but a born Wiltshire man could hope to interpret. Piecework prevails throughout the quarries; every crane being let to a ganger, who contracts with the proprietors to supply stone at a given price per foot delivered into the trucks. Each ganger pays his own men, generally by the piece also; and when tolerably fortunate in the lie and nature of the stone, all the workmen make good wages, earning enough to enable those who are careful to put by something for a rainy day, after paying for the support of themselves and their families. Accidents to life and limb are almost unknown throughout the works: a few casualties have occurred since they were first opened; but these are unimportant in comparison with the large quantity of material which is got out yearly in safety. The two special perils of miners are entirely absent. Gas, of course, there is none; and falls of roof are prevented, as we have seen, by the methods employed in working. When we remember that in the subterranean world of Staffordshire, Lancashire, or Wales, some three-fourths of the disasters of which we hear so much every now and then are directly due to one of these two agencies, we shall cease to be surprised at the wide differences exhibited in this respect by two classes of works apparently so similar in every thing except the character of the mineral with which they deal.

Several of the ventilating shafts serving to produce a circulation of air through the workings rise to the surface of the ground by a tolerably gentle ascent, and are furnished with steps from top to bottom. These are made use of by the workmen for access to the quarries, and they form a designedly valuable arrangement for their health and comfort, bringing the men by short cuts to and from their work in the morning and evening.

The average daily produce of stone from these quarries is about 150 tons, being nearly double the quantity got out from all the other Bath-stone quarries taken together. The length of underground tramways leading to the several workings, exclusive of those which have been worked out and abandoned, is something over five miles; and the direct line running east and west through the length of the quarry is very nearly two miles. The number of cranes in constant use at the several workings is about fifty, each one of which keeps two or three of the narrow-gauge trollies fully employed; while the rolling stock comprises forty-six broad-gauge waggons actually belonging to the quarries, and exclusive of the Great Western Railway trucks, in which a large part of the traffic is carried on. The busy time extends from May to Christmas, though stone is got out for stock throughout the whole of the year; and the quarrymen are thus seldom thrown out of employ at a time when they most require work and wages.

Having by this time gained all the information which is likely to interest us, it will be well, while our candles are burning closer and closer to our fingers, to return once more along the ample subterranean roads to open air and daylight: feeling glad, at the same time, to know of one branch of industry at least whose operations, necessarily conducted under ground, are free from imminent risk to the workman's health and life, and yet not therefore unprofitable to its conductors.

TREES IN KENSINGTON GARDENS

An idea has got abroad, and has been noticed in the press, that great decay and havoc have occurred amongst the timber trees of the Gardens and Park, because some score of them have lately fallen and been eradicated. One of the complainants alleges that such decay is owing to the want of drainage, and to the plashy condition of the forest level; while another imputes the fatality to the absorption of the moisture by drains and culverts. There may be some reason in both conclusions; but the condition of the timber grown on this space is due to other causes; the first being, that the plantation was originally spaced too close; and, secondly, that the trees had not been sufficiently thinned out while growing, and before they arrived at maturity.

In the management of plantations intended for forest growth, it is a great mistake to crowd them too closely; for, if young trees are not thinned out early, nothing more than a coppice can be the result; and unless, in due progression, space be given for the due development of ramification, the stems will spring up stalky and more like canes than robust British arborage. The existing state of the Kensington woods plainly demonstrates that the thinning process was wholly neglected. There are, throughout the whole expause, but few examples of finely proportioned and full-grown timber trees. In fact, the distinctive character of the several blended species is almost lost in the ungraceful length of naked stems which, from their propinquity, whip and starve each other.

It is a great mistake to suppose that, on such a table of inclined land, drainage, or the neglect of it, under the shade of thick groves, should occasion decay. Judicious drainage would improve the young aspirants, which are always found to flourish upon table-land with a fair incline, *if the soil be congenial*. But the destruction of the largest trees was occasioned by the deep tunnel along the Serpentine, which not only cut the roots of five of the noblest elms near the water-works, but drew off their natural supply of moisture. There are also a few old trunks in the Park, most of them stunted and rampiked, which perished from the influence of subterranean absorption caused by the main sewer that traverses Hyde Park. Beyond these, there are not over a score of trees in the Gardens which have decayed within the last four or five years; and that, under the unfavourable condition of the woods, as before cited, is not in excess of ordinary forest waste.

The fall of the five elms at the head of the Serpentine is certainly no loss, since the whole space is too much overshadowed, and the points of view are obstructed; the scenic effect being destroyed by overcrowding, and the consequent unnatural and less-graceful growth; whilst the atmosphere, which, amongst trees properly placed, ought to be refreshing, becomes heavy and unwholesome. At this moment, the greatest service that could be done to the plantations would be to permit a judicious woodman to cut away at least *one-fourth part* of the standing timber throughout; for they overbear and poison each other.

The soil of Hyde Park is certainly not very favourable to the growth of giant trees: the condition of those now standing—veterans of one to two hundred years—sufficiently proves that fact. It is not the stagnant waters complained of by the passenger through the gardens that occasion their decrepitude, but rather the drought, and poverty of the staple in Kensington; although moderate drainage, say 18 inches deep, could not harm them; neither does the surface-water after rainfall do much damage, since the super-stratum is gravel. Still, surface-drainage in this soil would carry off the ferruginous properties which would be ungrateful to young plantations, as the plashy footpath is to the plaintive "Viator" of the *Times*. To satisfy him, however, the Chief Commissioner might direct that traverse footpaths should be cut from every entrance wicket-gate,—bending from those at Queen's Gate and Porchester-terrace to the corner of the gardens at Rotten-

row, leading to Prince's Gate. Those walks through the wood ought not to be straight lines, but a little serpentined, for effect. A slight winding would not add 30 yards to the whole length.

Although much taste and skill were evinced by the designers and planters of those grounds in the reign of William III. and Anne; still the true science of arborage was then unknown. They had in those days, and over a century before, introduced some varieties of trees and plants from foreign countries; but within the last century, the number of trees indigenous to Great Britain has been multiplied by the importation, from various parts of the globe, of ten times their amount, and by their acclimatization in our gardens, parks, and forests. Originally, the forest standards were few beyond oak, ash, elm, beech, birch, alder, yew; and even these have, in their varieties, been extended fourfold; while, again, the busy arborists of England have transferred to British colonies, and other countries, the forest products of this island.

The rarest of all our acquirements appear to have been derived from America; and the colonies of Victoria and New Caledonia will enrich our stock in kinds and qualities, even beyond all that has been attained hitherto. The fir, "Abies Douglasii," evergreen, which attains the height of 200 feet, and makes the most durable as well as odorous timber, would seem to be the most valuable; the Platanus, or Plane—occidentalis, from America, and orientalis, from Asia—the most free-growing and ornamental.

It is proved that trees formerly considered peculiar, because indigenous to certain countries, will thrive and flourish, when transplanted to other regions, provided the conditions of soil and climate be not altogether violated; as by transference from the torrid to the frigid zone; or from a dry, sandy, to a spongy alluvial soil. As, for example, many specimens of the British forest, and also of horticulture, have been transferred to Australia with wondrous success, and so *vice versâ*.

To return to the question of park drainage. To a fair extent it will improve but never kill a tree. The stagnation of water, however, about the stems will naturally rot the roots; for this excludes atmospheric action, which is quite as essential to vegetable as to animal life. The tree breathes through every leaf—inhales and exhales; therefore, overcrowding stints the growth, and leaves no room for the graceful expansion of the plant; which, when left to nature, arrives at true perfection.

BRIXWORTH CHURCH.

At the recent meeting of the British Archæological Association, as we have already mentioned, the Rev. C. F. Watkins gave some particulars of Brixworth Church. In the course of his observations he said:—

It is now thirty years since I took possession of this living, and I was naturally struck with the singular appearance of this building—its arches formed of Roman bricks, and every subsequent style of architecture interposed up to the time of Henry VI. The only notice that had previously been taken of the church was by Mr. Britton, that energetic and useful pioneer in archæological matters; and Rickman, the writer on Gothic architecture; both of whom had their attention called to the building by Mr. Baker, the late historian of the county, and his sister. Through the exertions of the latter, some of the brick arches were scraped and laid bare, and the foundation of the outer wall to the north aisle ascertained; but nothing was done to develop the original plan of the building; nor was any plan suggested. Mr. Britton concluded it to have been an Anglo-Roman building—Mr. Rickman a Norman: it appears, however, as deduced by Mr. Roberts, from the edition of his book in 1835, eleven years after he had visited Brixworth, that he then classed it amongst the Saxon buildings of the country, though not earlier than those of Barton-on-Humber and Earl's Barton.

After long, careful examination, and mature consideration, I concluded it to have been originally built for a Roman basilica or hall of justice, or rebuilt by the early Saxons after the Roman type. I met with little encouragement and much opposition in proposing this view. There was at that time a prevailing prejudice against the supposition of the existence of early remains of Saxon architecture of any account, or of anything prior to the Norman period. A hundred years ago prejudice ran the contrary way. If an arch was discovered with any tracery, especially with any chevron work, it was immediately attributed to the Saxons. When that error was exploded, the prejudice ran in a contrary direction, as is usual with mankind; and the Saxons were reported as incompetent for any considerable work. The late Marquis of Northampton, and the late rector of Orten Longueville, who had examined all the architectural remains in Italy and the rest of the Continent, alone encouraged me in this view.

The first thing I did was to take occasion of the burial of a parishioner in the chancel to make excavations there. I observed in the north-western corner of the exterior two sides remaining of a former polygonal structure, and noticed that the interior of that part curved a little. This led me to infer that it was part of an original apse, polygonal without, and semicircular within, and probably with an underground crypt, as in the oldest forms. I therefore made the masons prolong their excavations till they reached, as I suspected, a subterranean wall, 10 feet deep, which I made them lay open in its whole extent, till it came to view, a perfect semicircle; and I left it open for public inspection from two to three months. But, being obliged to close it up for the performance of sacred rites, I determined to work in a different quarter. Having observed an opening at the east end of the subterranean wall, I concluded there must have been also a subterranean chamber or corridor on the outside of the wall for this source of communication; and if a corridor, or ambulatory, as it is sometimes called, a descent to it from the east end of the church. Accordingly, I had the wall at the north-east corner, behind where now the organ stands, pierced and opened; and, after some labour and risk, succeeded in laying bare a circular-headed doorway, from which, I doubted not, there had been descent to the cavity below. A serious obstacle presented itself to any investigation without, in the form of a solid embankment as high as the present window; but, after removing about 200 loads of earth, I had the satisfaction of revealing the outer wall of the crypt; the doorway and original steps of descent; an outer low subterranean wall encircling the corridor in parallel lines with the original apse,—*i. e.*, polygonal without and semicircular within, with a recess in one of the sides, receiving a vaulted roof which sprung from the string-course of the wall of the crypt. My next object was to lay open what I concluded would prove to be the north aisle with its apsides, which the respective arches seemed to indicate as having existed. Another embankment of earth, up nearly to the windows, again proved an obstruction; but I at length succeeded in laying open the whole aisle, conterminous with the nave, subdivided into cells, with a terminal square apse at the east end, and a rectangular one at the west,—the latter formed by the recess from the nave to the square porch. On the south side, where greater obstructions presented themselves in more recent buildings, I made sufficient investigations to assure myself of corresponding parts to those on the north. Thus, abstracting the circular tower at the west, which, by its straight joint and other features is proved to have been a later appendage to the building, I at length ascertained and developed, what I had always inferred and suggested to others, a complete basilican form in the original building; viz., a square porch, with a main west entrance opening into apsides north and south, and into a nave with four arches of a side, these arches opening into corridors; and with clerestory windows above, between each two of the four arches; a compartment at the east end of the nave leading into a semicircular apse, and opening into square apsides or terminals to the aisles, at its commencement from the nave.

And now with respect to this compartment. It is evident that the walls on either side were originally without openings. The first that was made was the smaller arch on the south side, excavated for the purpose of communicating with the present south aisle, which was built in the early part of the fourteenth century, as a chapel for Sir John de Verdun, lord of the manor, whose effigy is now inclosed in an arched recess of the south wall of that aisle. Fifty years later the larger arch was opened, and a clerestory window above. In the north wall of this compartment a Decorated and a Tudor window were afterwards inserted: the latter is now superseded by a Decorated window, substituted at the time of rebuilding the wall in that part.

If you look up to the commencement of the large arch which leads from the nave, you will perceive the spring of an early brick arch, which was supposed to have spanned the whole width of the church; but it is evidently too small for such a compass; neither is there sufficient pier to support such an arch. I suspected that it was only a small clerestory arch, corresponding to the opposite one at the east end, for the purpose of throwing light into the choir from the clerestory of the nave, as those at the east end did from without the building; and that there must have been a central or triumphal arch corresponding to that which leads into the chancel, with side walls and round-headed doors, and clerestory windows over them, in counterpart to the east end. On burying a corpse near to the crossing, I had the excavation continued, till I arrived at the bases of the central piers, thus verifying all that I had inferred respecting this building. I shall not detain you at present by any particular account of the Basilica in general, but simply state that it was originally a building in which the royal and sacerdotal functions, as united in one person, were exhibited; the civil and religious authorities exercised by the same individual; the "Rex Anius atque sacerdos" having its type (as I can aver from long research) in the earliest periods of most ancient nations, and necessitating such a construction in this form of building.

When Mr. Poole, several years ago, read a paper on Brixworth Church, before the members of our Architectural Society, at the George Hotel, Northampton, I added *vivâ voce* observations of a supplementary character, and some of them to this purport, that I was convinced we should some day find the origin not only of the circular brick arch, called the Roman, but of the basilica itself, in the plains of Shinar. Some time afterwards, on going to the British Museum to inspect the slabs from Nineveh, I discovered the type of one of our Saxon arches on one of the blocks, and beside it a type of the Norman arch, with its chevron work. And I had the satisfaction of subsequently hearing Mr. Layard describe, at a meeting in the Mechanics' Institute, the foundation of a basilica in the ruins of Nineveh, corresponding in its several details to that of Brixworth.

THE ARCHITECTURAL PUBLICATION SOCIETY.

Since our last notice of the works issued by this Society, two parts have been delivered to the members this year,—one containing the letter F; the other fourteen plates of illustrations to "The Dictionary of Architecture." The remarks we gave on the previous occasion were somewhat *in extenso*, and such as tended to direct the attention of our readers to the object and scope of the work, whilst urging on those who were not already subscribers to join in the production of this elaborate publication. We will refrain, therefore, at this time, from doing more than noticing the fact, as the pages can readily be referred to in the last year's volume, and proceed at once to comment upon the contents of the new parts before us.

Prefixed are a couple of pages containing the "List of Terms" proposed to be inserted under the letter G and part of H, and "forwarded for the object of inducing communications from members and others, having notes referring to the several subjects, and also drawings to serve as illustrations." A copy of this list would, no doubt, be forwarded to any of our readers who might feel induced to take that interest in the work, even if not assisting with that other essential to the "sinews of war," the subscriptions. We mention the titles of articles;—as Felling; Felspar; Fence; Ferrara; Festiniog Slate; Fibrous Slab; Figlinum Opus; Filter; Firenze; Fischers; Fives Court; Flamboyant; Flemish Architecture; Flintwork; Floor; Flue; Flute; Fontaine; Foot; Foundation; Freemason; Freiburg; Fruit-room; Fusibility,—merely to show the scope of the work and the general contents of the part, comprising nearly one hundred folio pages. We have lately heard some remarks upon the insertion of so many Spanish and Italian names, as well as other articles; and this was likewise animadverted upon at the annual meeting, and subsequently in a communication which we printed. There is some force in the observation; and it would certainly be desirable to shorten the work as far as is consistent with completeness. Some few of the headings already admitted would probably never be looked for in an English cyclopædia; for example, in the present part, Foris, one of the Latin names for a door; or Fosse d'Aisances, the French term for a cesspool: nevertheless, we are glad to have the information given in both these cases, and are forced to say the same, after a somewhat careful examination, of the greater part of what might reasonably have been omitted.

To remind some of our readers of the style in which the articles are written, we print at the end of this notice what is said under the heading

Freemason, and shall not be sorry if it lead to discussion. The matter under the headings Figlinum Opus, and Flute, amongst others, is new and valuable.

The second part, lately forwarded, though dated in May, includes illustrations to the letters F to P. The first, "Farm Buildings," is a plan of the Imperial farm (Pastoral) at Vincennes, useful for comparison with the systems adopted in England. The "Fountain" in the court of the Mosque of the Sultana Valides, at Stamboul, is lithographed by Messrs. Kell, after a drawing by John W. Walton. "Groined Roof" includes an example from an old house, formerly a chapel at Ratisbon, with plan and section. A whole plate is devoted to a view of the chapel in the Hospital of St. John, at Angers, under the same title, from a drawing by Mr. R. A. Johnson, lithographed by F. Bedford. "Half Timber House," at Bacharach and Angers; "Lichgate;" "Metal Work" (two useful plates of knockers, hinges, locks, towel rack, &c.); "Mosque;" "Porch" illustrated by two specimens from Lisieux and Bayeux Cathedrals, are amongst the other subjects. The most important, however, are two plates of "Marble Pavements," taken from various parts of St. Mark's, at Venice. These are given, not only in colours, after careful drawings by Mr. H. Bowman, but also accompanied by two plates of the outlines, which we presume are only impressions from the "key" stone of the coloured ones; and therefore costing only the expense of printing; giving the student the means to exercise his skill and taste in varying the colours. Regarded as pavements, however, the designs are mostly very bad, presenting the appearance of all sorts of uncomfortable angles to walk upon. These plates have been carefully printed in colours by Vincent Brooks.

FREEMASONS.*

The designation Freemason (Fr. *Maçon; tailleur de pierre*) was formerly in use in the building trade for a stone-cutter, and is now merged into the general term, mason. The earliest use of this word at present known is in a record of 1396 for works at Maidstone, as "*Lathomos vocatos ffre maceons—Lathomos vocatos ligiers,*" Rymer, *Fœdera*, Syn. xvii. The Fabric Rolls of Exeter Cathedral, dating 1396-7, are said to contain the word 'fremason.'

The word *latomos*, derived from the Greek, is seen in an inscription, dating 1257, on the cathedral of Notre Dame at Paris (Inkersley, *Inquiry*, 8vo., London, 1850); but it is not found in England until the end of that century, nor until the middle of the following century, in general use. The term previously employed was the Latin word '*cementarius*,' as in the London Assize of 1212 (Brit. Mus., *Add. MS.*, 14,252, fo. 133 b, and in Turner, *Dom. Arch.*, 8vo., London, 1851), which has likewise the title '*sculptores lapidum liberorum*.' As exhibiting the connexion of 'freemason' with 'freestone,' and its probable derivation therefrom (although some writers assert its origin from 'free' of the company of masons), the following may be stated; an indenture of 1314 in the French language, is to the effect of a '*masoune*' having to erect a house '*de pere fraunche*'; Parker, *Dom. Arch.*, 1853, ii., 5; *freestone*; and though the statute of 1349 uses the word '*cementarius*,' that of 1350-1 contains the words '*mestre mason de franche peer*'; that of 1360-1 has '*de fraunche pere ou de grosse pere*,' wherein the workman is called '*maceon*'; and that of 1444-5 mentions a 'frank mason,' and 'un rough mason.' Thus four classes are probably obtained, viz., the freestone mason (Fr. *l'appareilleur*); the rough or rubble waller (Fr. *le limousin*); the layer or setter (Fr. *le poseur*); and the common workman (Fr. *le debardeur*). The above derivation of freemason would be supported also by the fact that the term freemason was not adopted in Scotland, where the stones in general do not enter into the class of freestones as in England.

A fraternity or guild of masons existed in the city of London in 1375, 49th Edward III.; and in the following year, another of freemasons is noticed. The latter body is said to have merged into the former: this certainly took place before 1421, and probably about 1411, the date recorded in the usual subscription to the coat of arms of the company of masons, as the period of its charter of incorporation. Halliwell, in *Archæologia*, 1838-9, xxiii., 447-9, states that a company of 'under-masons' was formed in London in 1473, 12 Edward IV. The guild is called 'cementarii' in 1422 and 1423. Others existed in the corporate towns. The statute of 34 Edward III., 1360-1, declares "that all alliances and covines of masons and carpenters, and congregations, chapters, ordinances, and oaths betwixt them made or to be made, shall be from henceforth void and wholly annulled," etc.—an act enforced by many of later date, especially by the often-quoted one of 3 Henry VI., 1425; and even as late as 1548 the confederacies continued illegal. The general statute of 5 Elizabeth, 1562-3, further restricting workmen, continued until 1813, when that portion which empowered justices to rate the wages of artificers and labourers was repealed; and in 1814 a further portion was repealed, as forbade exercise of trades by persons not having served an apprenticeship, and as regulated the mode of binding, etc., at the same time the customs and privileges of cities and boroughs were saved. Statutes to a similar effect as those above mentioned were passed in Scotland, which country had guilds corresponding to those of England.

The masons' guilds or companies, like those of other trades, had a legendary history of the origin of their trade: this, together with the supposed 'constitutions' or by-laws, have been printed many times: a good specimen is given in the *Gentleman's Magazine* for 1815, pt. i., 489. One in manuscript, on parchment, dating the latter part of the fourteenth century, exists in the British Museum, Bib. Reg., 17, A. 1, ff 32, and is peculiarly interesting from being written as a poem of 575 lines, the versifier being probably a priest. This MS. was first noticed by Halliwell, in the *Archæologia*, xxiii.; and edited by him as *Constitutions of Masonry*, 8vo., London, 1840; 2nd ed., 1844. Another manuscript of the latter part of the fifteenth century, bought for the same library in 1859, Addit. MS. 23,198, has been edited as a facsimile by Cooke, *History and Articles of Masonry*, 12mo., Lond., 1861. These, with the later manuscripts and texts, are all in English. It is noticeable that no two copies are alike, while none afford any clue as to the date of compilation.

As regards the interesting question of a supreme guild directing the systematic working of these corporations, nothing has yet been discovered in England; for the text of the above legends, etc. may be applied for and against such a decision. In respect of Germany, however, Grandidier, *Essai sur le Cath. de Strasbourg*, 8vo., Stras., 1782, shows that, besides other companies of masons, the masters of the lodges (*hütten*) of masons employed in the erection of buildings and cutting of stone, in several cities of Germany, assembled at Ratisbon, so late as 1459, when they drew up an act of fraternity, which established the chief mason of the cathedral of Strasbourg (then Jost Dotzinger) and his successors, as sole and perpetual grandmaster, a predominance which lasted until 1707. This society, he states, received the sanction of the emperors (probably in a similar manner to the charters granted to the English guilds); and, to distinguish themselves, the members adopted words, tokens, and signs, and instituted certain ceremonies on the reception of new members. Although its jurisdiction was early sanctioned in matters relating to building, and the archives of Strasbourg are full of such documents (*hütten-briefe*), the magistrates withdrew the privilege in consequence of the bad use made of it. It is to this lodge at Strasbourg (the cathedral was begun in 1277, by Erwin von Steinbach) that Stieglitz, *Geschichte der Baukunst*, 8vo., Nur., 1827, p. 428, observes that Pope Nicolas III. gave, in 1278, a letter of indulgence, renewed by his successors, and by Benedict XII. in the fourteenth century. Heideloff, *Die Bauhütte*, 4to., Nur., 1844, also contains some documents apparently to a purport similar to the English constitutions. Lodge.

But little appears to be known of a building fraternity in France. Ordinances of the carpenters and masons are, however, still preserved in the *Registres des Métiers et Merchandises*, at Paris, printed in the *Réglemens sur les Arts et Métiers de Paris, rédigés au xiii^e siècle*, edited by Depping, 4to., Paris, 1837, which exhibit rules and regulations. In Italy still less is known of the customs of this trade.

The monopoly exercised by fraternities of all trades in the chartered towns of England becoming abridged or intruded upon, as well by the increase of new towns as by the settlement in this country of large numbers of foreign artists and workmen in other towns, a system was adopted of accepting members not exercising trades, to the benefit of the privileges of the chartered companies. This commenced early in the seventeenth century, if not before; the traditional history and forms being kept up, those of the masons more especially spreading (from political causes probably), may account for the retention in scattered localities of 'Lodges of Freemasons;' it being alleged, moreover, that from traditional usage, any five, or even one, mason could make a brother mason. Four, at least, of such lodges existed in London in 1717, when a meeting was held and a grand lodge constituted, from which, in England, has resulted the present 'Society of Free and Accepted Masons.' A similar grand lodge was formed for Ireland in 1730; for Scotland in 1736; and the lodges extended throughout the world. What is now understood by 'practical and speculative freemasonry' will be best known from the many publications issued by the members of that respected fraternity: these works, however, put forward a large claim to an antiquity that is not sufficiently supported by historical evidence.

As regards this nation, comparatively so few Fabrick Rolls and other documents relating to buildings have been printed, that but few of the actual designers, as the master masons most probably were, of the edifices are known. In this work it has been attempted to arrange those recovered, under the cities, and under their names, in all countries. For England, also, it has been attempted by W. Papworth, *The Superintendents of Buildings*, etc., given in the *Transactions* of the Royal Institute of British Architects, 1859-60 and 1861-2; previous to which, Dallaway, *Collections for an Historical Account of Master and Free Masons*, 8vo., Lond., 1833, had treated the subject in a professional view. Otherwise, nearly all other writers have felt the influence of the publications relating to the Friendly Society above mentioned: such as, Anderson, *The New Book of Constitutions of the Ancient and Honorable Fraternity*, etc., 4to., Lond., 1723, and its enlarged editions by Noorthouck, by Preston, and by Oliver, for England; of Laurie, *The History of Freemasonry*, etc., 8vo., Edinburgh, 1804, and 2nd ed., 1859, for Scotland; and by Sprat, *The New Book of the Contitutions*, etc., 8vo., Dublin, 1751, for Ireland. Krause, *Dei Drei aeltesten Kunsturkunden der freimaurer bruderschaft*, etc., 2nd ed., 8vo., Dresden, 1821, is a collection of works relating to this society.

* We give the following as a fresh view of the early history of the Freemasons, without admitting its conclusiveness.

BANK OF ENGLAND NOTES.

Some uneasiness has been caused by the statement made by the Bank of England authorities, that a seemingly-unknown quantity of the paper on which their notes are printed has been stolen from the mill in which this material is made; and that forged notes, printed on the Bank paper, are now actually in circulation. In the caution which has issued from the Bank of England the public are advised not to trust to the well-known and peculiar quality of the paper, "but to examine with increased care the printing also;"—further, "in all cases, for their own protection, to obtain and preserve the names of the persons from whom the notes have been received." This, of course, is the best step. The necessity for these precautions shows that, notwithstanding all the care which is taken in the production of the notes, chief dependence has been placed upon the paper, which certainly is a wonder of manufacturing skill. As a work of art, the real note is not so good that the difference between the forged and genuine notes can be detected at once. This is unsatisfactory. Measures should at once be taken for rendering this circulating medium more secure; and one of the best means would seem to be to render the Bank of England note perfect in design and exquisitely beautiful in execution, so that forgery would be so difficult and so expensive, that imitation would be far less possible than is the case at present. The cost of the production of the plates for the notes should not be taken into consideration: our most able artists should be invited to furnish designs; and the best of our engravers should, with their own hands, cut the pictorial and other portions of the plate.

To prevent the application of photography to aid the forger, it would be only necessary to use *yellow* paper, as Mr. Claudet pointed out to us a few days ago; for then nothing printed on it could be reproduced: the whole surface of the photograph would be black.

It may be worth mentioning that, in some of the forged notes lately issued, the sky and background of the Britannia are of one uniform tint; whereas, on the genuine note, there are *three* tints. And this is the only difference observable by out-of-door examiners.

WELLS CATHEDRAL.

THE BRISTOL SOCIETY OF ARCHITECTS.

On the 16th instant this society made an interesting excursion to Wells and Glastonbury, stopping on their road at Whitchurch (lately restored by Mr. Street) and Chewton Mendip. Mr. Fripp conducted the party over the church at the latter place, and pointed out the peculiar features in this church, which is truly Somerset in character.

At Wells Cathedral, Mr. E. W. Godwin acted as guide. After supplying the dates of the various parts of the building, especially the four developments of the Early English or First Pointed style, he proceeded to analyze the architecture itself. We have here, he said, three, or, rather, four styles of Early English architecture, the first or original design appearing in the presbytery and transept; the second, a development and enrichment of this design, in the nave and its aisles; the third, a totally different phase of the same style; so different, indeed, that it might almost be taken as a distinct style, in the west end; and the fourth, almost transitional, in the crypt. I scarcely need remind you that one of the great distinctions between the Early Gothic work of England and France is to be found in the plan of the abacus. In France nearly all abaci are square: in England, on the contrary, they are nearly all circular. In France the development of the Romanesque was more gradual than with us; and the Early Gothic grew so subtilely out of it that, but for the round arch, there is little or no difference between the Early Pointed and the late Romanesque. With us it was altogether different: we were of course influenced much by the Continent; and, instead of working out our own style, we adopted their fashion of building, without slavishly adhering to their detail. The result was that while France preserved all the grand and powerful features of the Romanesque—such as the square abacus, the square nook for the angle shafts, and the square as the basis of their pier sections—we, on the contrary, got rid of this powerful element as rapidly as we could; setting even our square piers diagonally; changing the square abacus for the round; and melting the angle shaft into a chamfer or a group of mouldings: here, in the new piers, we have the square scheme, or French development; and here, adjoining, in the west tower, we have the English development, or round scheme. I may just mention that at first sight most large Early English piers appear as clusters of mouldings or shafts, but in reality they are always of one or the other of two, from a square or a circle; the square being more generally set diagonally. In the presbytery at Pershore Abbey is a very fine example of this, the number of surrounding shafts being the same as in the piers here, and of much the same section, except that the cardinal lines which we find at Wells are at Pershore all diagonal. It is almost impossible to conceive the change which results upon the same section of moulding by this substitution of the hypothenuse for the two sides. If you wish to compare the great schools of Early Gothic in this neighbourhood, I would suggest for your selection the interior of the north porch of this cathedral, and the north chapel of Bristol Cathedral. I have already pointed out the French or Romanesque planning of Jocelyn's piers. If we look at the early windows, we shall see they were governed by the same influence. Here again we know the French lancets were broad to an excess, whilst our builders could scarcely ever make them too narrow. Had these windows, which are now filled up with Perpendicular tracery, been round-headed they would be even more Romanesque in proportion than the late Romanesque windows of Glastonbury. If we turn to the buttresses, we see precisely the same principle applied as compared with English work of the same date, or even earlier: at Lincoln they are quite Norman in expression: instead of the far-projecting, the narrow, and the lofty, we have the broad, the shallow, the low, the massive. In the entrance to the porch this Romanesque feeling is still more emphatic: not only does the disposition of members remind us of the earlier style, but here the very enrichments are essentially Norman. Thus the martyrdom of St. Sebastian, or the capitals of the eastern jamb, and the playful zigzags in the arch, look so much like earlier work that I have sometimes thought this archway must have been one of the works executed before Jocelyn's time,—perhaps just before,—and that, being both good and new, Jocelyn retained it in his new building. I have said the transepts are older than the nave. If you take a bay of each and carefully examine them, you will readily see this; for, although the main lines and great arches and piers, and the vaulting, are the same, the work of the nave is much richer, and the scheme of the triforium altogether different in idea, although not so unlike in form as to create any discord. This change in the triforium results from simply substituting the horizontal idea for the vertical. In the older work you will see that the vaulting shafts come down through the triforium space to the string-course of the main arcade, and so divide the triforium into bays of two coupled openings; thus carrying up the vertical line of the main pier to the roof. In the nave the vaulting shaft is made nothing of, but is reduced to a mere corbel, while an extra opening is given to each bay of the triforium, which now appears a continuous arcade, leading the eye irresistibly from end to end instead of from floor to roof. This arrangement, though expressing greater length, has been most destructive to the height, which is about 68 feet. You will, of course, see there are minor differences between the nave and the transept triforium; therefore, though we lose verticality in the nave, it is, perhaps, taken altogether, a decided improvement on the old design. Passing by the west end for the present, we come to the last development of the Early English style, as it appears in the passage and crypt beneath the chapter-house. I would call your attention to the corbels, as being particularly fine: the ironwork is original, and full of thirteenth-century conceits. In the presbytery, although we have the arches of three bays, we only have the intermediate and the western piers: the eastern half of the last arch rests, as you will readily see, on a totally different pier; and the arch mouldings are cut away, the better to fit the new capital. This entire destruction of a pier, without disturbing the arch, shows that the pier must have been of such a form as to demand removal in lengthening the church; and if you consider that on the outside at this point there appear two of Jocelyn's early buttresses, much wider than any of the others, I think you will have little difficulty in agreeing with Professor Willis that these piers mark the upper termination of Jocelyn's Church; while below the aisle returned along the east wall, and a Lady Chapel probably extended eastward, in the form I have shown in the plan. It is to be remarked, that the carving of these first capitals of Jocelyn's work is very inferior to that of his later work in the nave. The capitals in the transepts are also so superior, both in design and execution, that I have little doubt the only carved work done at the time of opening the transepts and eastern part for divine service was what we now see in the four capitals of the presbytery; and that when the nave was added, the carving of the transepts was proceeded with. Now, I dare say some of you have noticed what may have appeared to you a great mistake on my part; viz., that I have continually alluded to these three oldest arches as the arches of the *presbytery;* but I have done this deliberately, because I feel satisfied that the old choir was beneath the tower. We know that this was a rule in Norman or Romanesque cathedrals; and we have seen enough to show that the designer of this church was thoroughly Romanesque in feeling. Moreover, the eastern piers of the tower remain, with the projecting shafts, stopped on corbels, at such a height as to allow a flat wall for the woodwork of the stalls to be set against. This and the large buttresses, with the resulting conjecture of Professor Willis, as to the extent of the presbytery eastward, is abundant evidence, I think, for his conclusion. When the cathedral was lengthened, and the new presbytery and Lady Chapel built, then the screen was moved, as was almost always the case in later times, to the eastern arch of the tower or crossing. You will remember the tower was finished in 1321, and the new presbytery in 1325; so that, when the settlements and cracks appeared, which frightened the canon in 1337, there was already in the eastern arch a complete abutment to resist the inward bending of the piers, in the form of a solid rood-screen, of stone. This at once explains why only three of those peculiar double arches were inserted; and, at the same time, gives us occasion for questioning the economy of those heavy internal flying buttresses. The graceful manner in which the Lady Chapel is opened to the presbytery is probably taken from Jocelyn's Church. The motif is altogether Early English; and even the proportions of the arches remind one of earlier works. With this exception, there is nothing here worth calling your attention to. Abbot Knowle's work, in Bristol Cathedral, which is only a year or two earlier, is altogether superior in design, detail, and execution. I have here, in the Lady Chapel, to call your attention to the intersecting plan of the vaulting. A mysterious kind of effect is produced by this repetition of pillars which no other architectural feature can supply. The crypt of Worcester Cathedral is, perhaps, the finest specimen of this class of work. It is a perfect forest of columns; and, when lit up as I saw it three weeks ago, it has an effect not easily forgotten. With the single exception of the way in which the vaulting is managed, I look upon this Lady Chapel as no better than the other work of the same date. There is a weakness about the constant recurrence of the same form in the tracery of the windows; the lines of the vault are, in some cases, clumsy to a degree; and the capitals have lost their constructional character altogether. The growth and vitality, the change and joyfulness so visible in the earlier caps, especially those with figures, are no longer to be seen. Leaves are now stuck on; or, at the best, wreathed round the bell of the capital; and so the function of the capital—the upbearing principal—is lost. Certainly the most picturesque part of this cathedral is the approach to the chapter-house; and, perhaps, the most elegant is the chapter-room itself. I may be wrong in supposing this approach to be some years earlier in point of date than the room; but I cannot help thinking it must be so, from the character of the tracery, which consists of nothing but the pure circle and the bold sections of the mouldings: to a critical eye it may be perhaps a trifle too heavy; but, taking it altogether, I look upon this vestibule as one of the best studies the neighbourhood of Bristol possesses. In the chapter-house it would appear almost impertinent to grumble at anything, but yet I cannot help regretting that on this glorious development of window and vault the architect should have come so short of his earlier brethren in the capitals and carving. It strikes me, too, that the window over the door is a mistake; for the function of that massive arch is lost, and it occurs to me that had this part been solid, and the window filled in with a noble group of sculpture instead of tracery; and had the carving been so nobly thought out as that in the nave; there would have been nothing to complain of. It only now remains to make a survey of the exterior. One of the most striking features of the clerestory of this church is the absence of flying buttresses, which I need not tell you is another evidence of the Romanesque feeling. The general design of the porch is very defective, especially the central shaft of the window over the doorway. As a contrast to this porch, that at Salisbury, of a little later date, stands out very nobly; here the doorway is everything: there all is grouped with equal thought, and the result is as grand as this is weak. We come now to the west end, and here I must confess I am rather nervous; for, if I am to be blamed for criticising the chapter-room, I scarcely know what will be thought of me for the heresy I am afraid I must be guilty of in condemning some parts of this front, which has so long been the great lion of the West of England; or, as Britton calls it, "the miracle of art." First, then, nothing can be much worse than the three portals, which are quite unworthy of the name. They have been compared—and I think very fairly—to rabbit-holes on a mountain side. Here, too, the arch of the central doorway fails in the same way as that of the chapter-house doorway. The crowding in of the niches over this doorway is in the highest degree clumsy; indeed, the whole thing looks like an afterthought, and as if the original architect had nothing to do with it. In the principal windows the shallowness of the reveals gives a bald and flat appearance to the openings. This, though a common defect in all French windows of the early period, is rarely seen with us; while here it is more apparent than it would otherwise be from the bold projection of all the other features. Perhaps, too, if you will not think me over critical, I might take exception to the sub-gablets in the first arcade. They look to me crowded, although they serve as canopies and cast a charming shadow. Then, too, I cannot quite understand the beauty of the solid work of the base, suddenly cropping out at the very summit of the buttresses with their empty niches, not altogether unlike dog-kennels of the modern Gothic school; nor is the sky line the most pleasing I have seen. Indeed, the central pinnacle is an addition of later date, the only use of which is to make what was ugly before still more emphatic. To turn from this unpleasant but still necessary work to point out the beauties, tempts me almost to forget that I am speaking to a body of men better able than myself to grasp the charms of this storied front; the elegant angle shafts, the seated figures, to give breadth to the narrow face of the buttresses; the figures in

pedestals on the top, to give height and lightness to the square termination, are all features which I am sure it is unnecessary for me to dwell upon.

At the conclusion Mr. J. B. Atkinson called attention to the two distinct schools of sculptors which appear to have been engaged in this front—the Lombardic, with the broad and massive folds of the drapery on the upper statues; and the Byzantine, with its classic folds, so numerous and so delicate, on the lower statues and small groups, especially in the mutilated group over the doorway.

After luncheon Mr. Lysaght read a paper "On the History of Glastonbury Abbey," communicated by Mr. R. W. Warren.

DESTRUCTION OF THE WORKS AT PLYMOUTH.

On the 25th instant the works erected here, inside the Breakwater for constructing the new fort, were entirely carried away. They consisted of a circle of 70-feet piles with 5-feet iron shoes, sunk in the rock round the foundation, to form the framework for the travelling cranes by which the blocks of concrete were to be lowered into their places. The works had occupied six months in erection, and were approaching completion. The foundation is to be a massive piece of masonry formed of large blocks of concrete made to dovetail in each other in courses, faced with proportionate blocks of stone, also dovetailed together, and to be carried up to within a few feet of low-water-mark. Large works have been erected at Laira, on the border of the Catwater, about three miles from the site of the fort, for the preparation of these blocks of concrete and stone, which were to be taken out to the site, all ready to be lowered into their places. For several months a large number of workmen, sometimes amounting to 190, have been employed in preparing the rock; and in February last the erection of this scaffolding which has been destroyed was commenced. The contractors are Messrs. Lee & Son, of London.

EARLY BRITISH STRUCTURES.

BERWICKSHIRE NATURALISTS' CLUB.

On the 19th instant this club visited Yeavering Bell, one of the highest of the Cheviot range of hills. The ancient manner of building was examined by the club with much curiosity. Great stress appears then, as in all early ages, to have been placed on the value of thick walls; and the circular form seems to have been adopted for most structures. Three or four courses of very large stones, arranged in a circle, 10 or 12 feet in thickness, formed the groundwork upon which the walls, made of smaller stones, were raised to a height of about 7 feet. In the instance of one fort, a circle of this description was 30 feet in diameter. Within it, also built in circles, were the habitations of those who defended them. In towns, or large assemblages of the same huts, the diameter of the circumvallation was correspondingly greater. Encircling the summit of the bell, a strong wall of the kind mentioned inclosed a space of twelve acres. There is no evidence, *in situ*, to prove the materials of which the roofs were constructed. On account of this absence of proof, bygone antiquaries assumed that they must have been made of a rude perishable thatch. But this seems scarcely probable. In the island of Uig, ancient stone huts of this description are still occupied, in the summer time, by the hardy and scant population; and these huts are roofed, conically, with flags of stone. As stone was in abundance on the spot, we may conclude it would be used, by a people who prized strength and security, in preference to a fragile and combustible material like thatch. The entrance of one fortlet is divided into two by a large upright stone, placed jamb-ways in the centre of it; and in the thickness of the wall, to the right of this entrance, there is a guard-chamber. At the highest elevation of the bell, within the ring of masonry mentioned as inclosing twelve acres, there is a smaller circle which has been known as the Temple. Within this mystic ring, which, in clear weather, can be seen for miles, sacrifices are supposed to have been offered to Baal.

The club next made for Old Yeavering, for the purpose of viewing a building of a later era—the reputed palace of the Saxon king, Edwin. This is a low, oblong, quadrangular building, now occupied as a hind's cottage. A few courses of large stones at the base of the masonry, and a fragment of walling, built up with the modern superstructure, are the only evidences of a very early building, except the strength of the walls, which are 5 feet thick. In the account of the life and labours of Paulinus, Bede mentions that he came with the king and queen to the royal country seat, which is called Adgefrin (Yeavering), and stayed there with them thirty-six days, fully occupied catechising and baptising; during which days, from morning to night, he did nothing else but instruct the people, resorting from all villages and places, in Christ's saving word; and, when instructed, he washed them with the water of absolution in the river Glen, which is close by. This town, he adds, under the following kings was abandoned, and another was built instead of it at the place called Melmin (Millfield). This account favours our acceptance of the tradition, that the ancient masonry indicated formed part of the country palace of the Christian king; and it can only be a matter of regret that so small a portion remains of it.

SCULPTURE IN THE PALACE OF ART AND INDUSTRY.

Before the opening of the International Exhibition building, a number of the leading English painters and sculptors expressed dissatisfaction with the tone of the drapery used as a background to the statuary in the picture galleries, as being not only unsuited to the marble figures themselves, but most injurious to the adjacent pictures. There has been already some correspondence with the Royal Commissioners on this subject; which, however, having failed of the effect the artists desired in obtaining an alteration of the objectionable drapery, the artists themselves have made a memorial protest to the Commissioners, which is signed by eighty-five British artists, including both sculptors and painters of more or less eminence. The drapery, they complain, from its dark tone, contrasts ill with the white marble of the sculpture, and destroys the warmer tints of the pictures. With reference to the prayer of this memorial, Mr. Oldfield, late superintendent of the sculpture department, has since stated that the present arrangement was made temporarily; that a proposal made by him to form a large panel immediately behind the sculptures, covered with the porphyry-coloured paper used on the pedestals of statues in the middle of the gallery, and to hang green cloth along the top and at each side of this panel, was approved of by the sculptors; and that Mr. Crace arranged to carry it out. For some unknown reason, however, it has never been done.

CARLISLE BRIDGE, DUBLIN, COMPETITION.

We have received several statements of objections to some of the proceedings in this matter; but we do not yet find ourselves in a position to interfere. The sixty and more designs submitted are under the consideration of the chairman of the Board of Public Works, and two other referees appointed by the committee. They are not likely to be influenced by the "dodges" pointed out to us.

NOXIOUS VAPOURS.

The report of the Lords' committee appointed to inquire into the injury resulting from noxious vapours evolved in certain manufacturing processes has been published. The committee think that it would be most desirable that the laws respecting nuisances generally should be consolidated and made uniform throughout the country; but whether this be practicable or not, there are certain points on which amendment appears to them to be urgently required. They recommend that the provision of the Smoke Prevention Act respecting offensive trades should be made of universal application; that gases evolved in manufacturing processes from furnaces or chimneys should be placed on the same footing as smoke from furnaces; that full effect should be given to the 23rd and 24th of Victoria, cap. 77, sec. 13. Looking to the very serious injury caused by alkali and other chemical works of a like description, to the great extent of those trades, and to the proved and admitted preventability of any nuisance by proper precautions, they concur with the manufacturers engaged in those trades, that they ought to be dealt with by special legislation. They do not hesitate to express their opinion that the Legislature should not attempt to prescribe the specific process by which the nuisance should be prevented, but that a substantial penalty should attach to the escape of gas or vapour during the process of manufacture; and that any person should be at liberty to sue for such penalty. But the committee feel bound to record their opinion that, for the effectual suppression of this nuisance, it will be necessary that inspectors, properly qualified, should be appointed, who should at all times have free access to the works, with or without notice, so far as may be necessary for ascertaining that nuisance is effectually prevented, and who should be officially charged with the duty of enforcing the law; and, without desiring to imply any suspicion of the local authorities, they concur in the opinion, expressed by more than one witness, that such inspectors, by whomsoever appointed and paid, should be wholly independent of all local control, and removed as far as possible from all local influence.

POLICE!

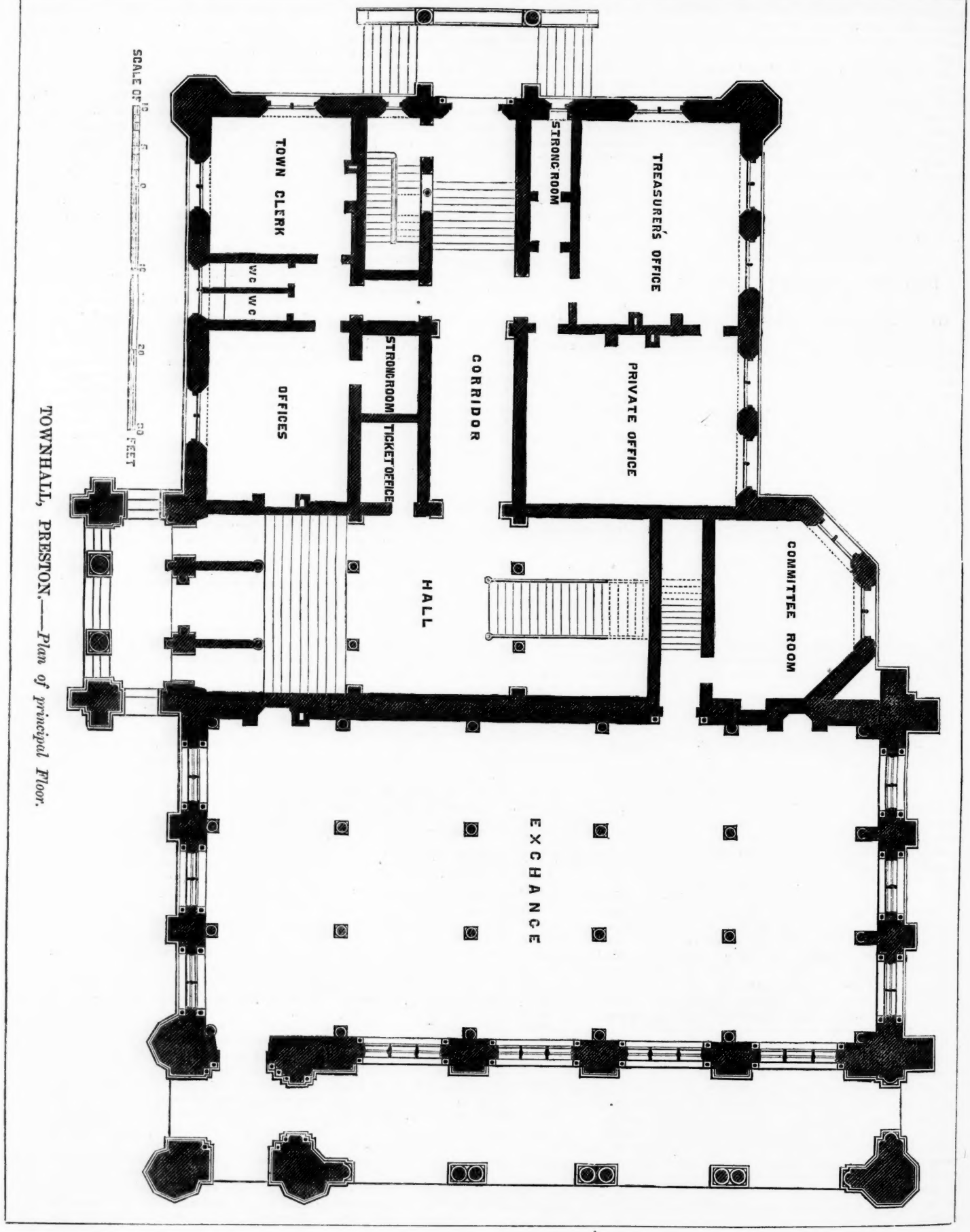
The accounts of robberies, attended with violence, which are now again daily occurring in the thoroughfares of the metropolis, would justify the idea that—as regards the sturdiness of the rogues and the inefficiency of the "*watch*"—we are returning to those conditions which were so notorious in the days of Queen Elizabeth and the dark days before them; when such places as the Clink, in the Borough, and the woods of Middlesex, harboured those dangerous hordes of robbers who made such frequent and desperate raids upon London. In those days the rogues had all the advantages of the darkness of the streets and the want of police regulations. When royalty, however, had been placed in danger, then the Recorder, with a warlike band, made a demonstration against the rogues; and, on capturing them in "shoals," made quick work with them, and treated them according to "their deserts."

In Queen Victoria's reign, with all the aid of brilliant gas-lighting, which even pervades the most miserable courts and alleys; and with the establishment of Sir Robert Peel's police, reinforced by detective establishments; it seems extraordinary, and even disgraceful, that deeds of violence, almost as bad as those committed by the professional stranglers of India, are of nightly and even daily occurrence in the metropolis and its suburbs.

This subject is worthy of the most grave and careful consideration. Those who have noted as carefully as we have done the dangers to be guarded against from the large mass of criminal and half-starving persons who lurk under the shadows of this great city, will not feel surprise at the planning and commission of the most terrible crimes; for in the neighbourhood of Drury-lane, and twenty other places which might be mentioned, there are still "shoals of rogues," who are even more desperate, and better trained to their bad purposes, than those who gave the ancient Recorders of the City so much trouble; but in these times, considering the enormous expense of the police, prisons, &c., it is but reasonable to expect that order should be kept, and the continual commission of highway robberies and garotting prevented, in the streets of the metropolis.

There are several causes which evidently lead to the results complained of; but the chief cause is the "ticket-of-leave" system, which is constantly throwing among the public, before the time, numerous dangerous characters, who, mostly by a system of artful hypocrisy, manage to induce the authorities to discharge them before the term of their punishment has expired. This is a fruitful source of mischief.

There is difference of opinion respecting the management of tickets of leave, but there can be none about the extent of the mischief which is caused by returned convicts; and it is clear that some other system of penal punishment than that of Dartmoor and other convict establishments is requisite. There has been much discussion respecting the present method of sentencing criminals to frequent and short terms of imprisonment by the magistrates. We will not enter into this matter; but there is also a defect in the police arrangements to which we must call attention. We have always maintained that an effective police force is the best means of preventing crime; and it is well known that the thieves commit the chief part of their depredations in those districts where there is a deficiency in this respect. A large proportion of robberies, and other crimes, happen in new neighbourhoods; and to these places the attention of the police should be directed; but, according to present arrangements, the supply of the police depends in a great measure on the extent of the



TOWNHALL, PRESTON.—*Plan of principal Floor.*

rate raised in a locality for the support of this force. In suburban districts, so few are the number of men on duty, and so wide are their beats, that at night the houses are left in a manner without protection at all; and it is not easy to find a policeman when he is wanted. Thieves know this, and infest the roads, rob and violently assault passengers, and plunder person and property in all directions.

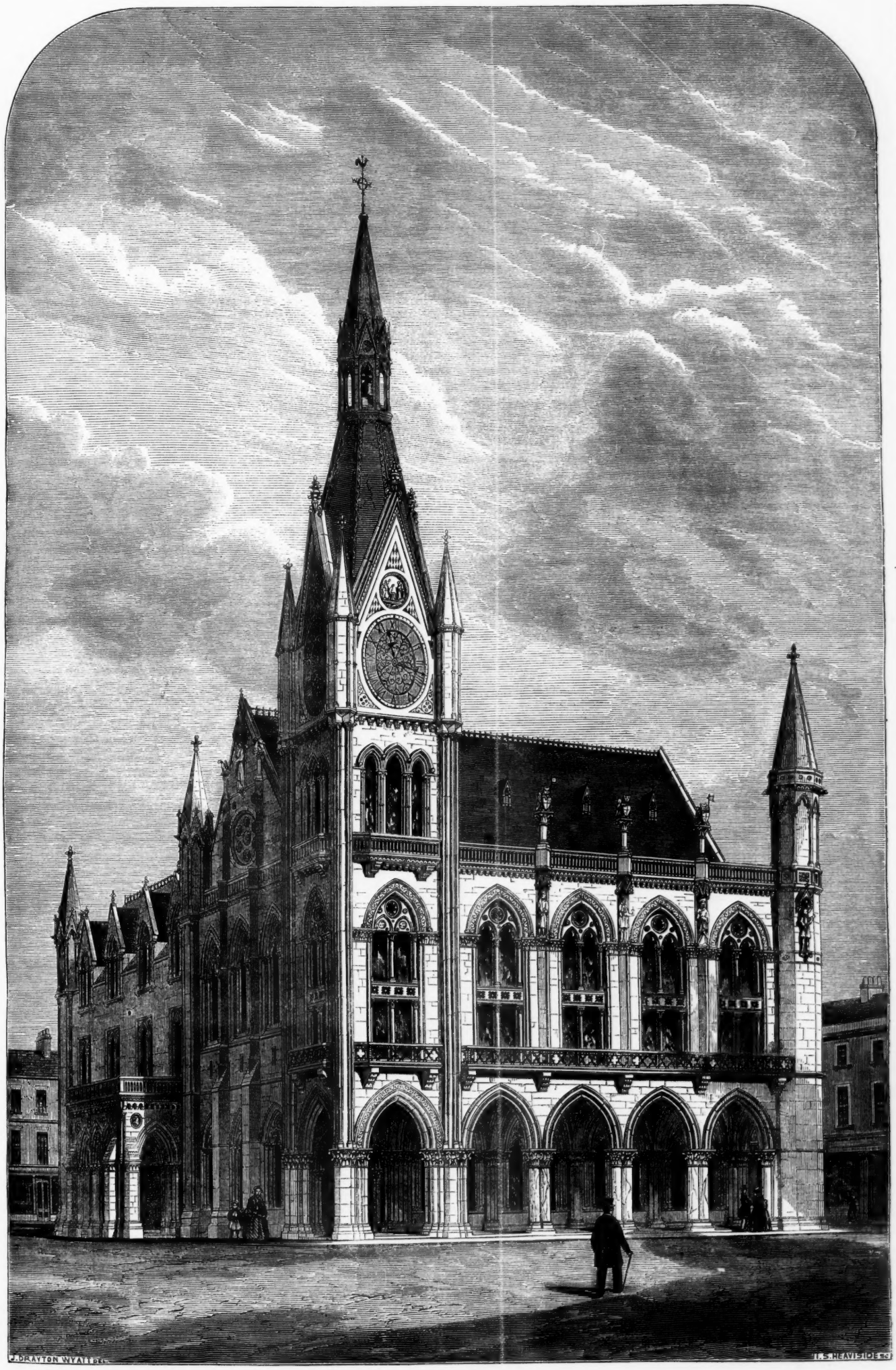
As regards street robberies of watches and chains, which are of such common occurrence, it must be admitted, that there is great temptation in the vain and flashy way with which these ornaments are displayed: it is like the practice so often objected to of tradesmen exposing their goods in the streets of a poor and hungry neighbourhood.

NEW TOWNHALL, PRESTON, LANCASHIRE.

The proposal to erect a new Town-hall in Preston was mooted several years ago, and some steps were taken towards its accomplishment; but these were, of necessity, after a time, abandoned. The passing of an Act, however, recently, revived the subject, the Town Council being empowered to include this among other improvements to be made in the town. The assistance of Mr. G. G. Scott was secured in preparing a design, and the new building is to be carried out entirely under his superintendence. The site is a detached one, so that the edifice will be well seen from several points of view. Along the principal front is a bold arcade carried by coupled columns, and at the end is a lofty clock-tower. The ground-floor comprises a large exchange-room, with treasurer's, town clerk's, and other apartments, as shown in the annexed plan. The upper floor has (over the exchange) a large room for public meetings, with gallery and orchestra, a council-room, committee-room, mayor's parlour, &c.

The walls are to be built of local stone, and the roofs covered with Westmoreland slates. Granite and marble columns are interspersed among others of stone, so as to relieve the colours constructively. Sculptured decorations, too, will be extensively introduced, in numerous foliated capitals, panels, and statues.

The foundation-stone is to be laid with some ceremony, we understand, on Tuesday next, the 2nd of September. Tenders for the erection of the building have not yet been applied for.



PROPOSED TOWNHALL, PRESTON.——Mr. G. G. Scott, R.A., Architect.

HOUSE ARCHITECTURE OF THE PROVINCES.

LEEDS.

In many of our provincial towns, meanness and ugliness prevail, and houses are run up with utter disregard of beauty, sanitary requirements, or healthful situation. The efforts of a man of taste on the spot, not afraid to speak out, can do much in this cause. At Leeds, Mr. Walter Smith, warmly aided by the Editor of the *Leeds Mercury*, is making some endeavours to bring about a better style of house-building. In that town, the most brainless new buildings of a Domestic character that can be conceived have been set up. Expensive houses are being erected in every direction, — perfect abortions. The increase in population has led to a brick-and-mortar crusade which is defiling every green spot near the town. Some of the sites are magnificent; and are being spoilt by the erection of houses only fit for grooms and railway porters. Mr. Smith, in the course of some communications on the subject, writes thus:—

The character of the architecture of a locality will be determined by the climate, and the trade or manufactures of it, if any character exists. But, in considering how this should affect the designs suitable to any special localities, we must not forget that in some cases there may be an artificial climate as well as a natural one. Thus the manufactures of Leeds, producing great quantities of smoke, and, to a certain extent, changing the atmosphere, thereby affect the climate of the town. It is worthy of thought, therefore, what materials will best stand the test of the smoke, and fog, and rain of a manufacturing town like Leeds. Experience seems to be adverse to stone, and in favour of brick, both on account of the softening of the stone and the loss of the effect of any enrichment by carving, through the gradual discoloration of any but perfectly smooth surfaces.

It becomes, therefore, a question of some importance as to what materials should be used externally, without running the risk of loss of beauty by discoloration and decay. With reference to the main body of a building, this may easily be answered. Good hard brick does not lose its colour, but rather improves in colour. Red, blue, and black bricks may be obtained for external use, which will retain any design worked in them for any length of time; and the effect of the damp and the smoke will only be to tone down and improve the colour of the structure. Encaustic tiles and string-courses, in bright colours, will relieve the heaviness of the sombre tone of the whole; and every shower of rain will cleanse the highly glazed surface of these tiles, as well as the brickwork, if the bricks be of the right quality. Instead of stone-carving enrichments, terra-cotta should be introduced, and moulded brickwork, which is terra-cotta of a rough kind. Mr. Broderick has done good service by introducing the use of this moulded brickwork into his King-street warehouses. Thus, with red, blue, and black brick, moulded brick string-courses and mouldings, encaustic tiles, and terra-cotta enrichments, we have a stock of materials which no climate will touch or destroy; and with them a field for design, both in form and colour, that will give our architects opportunities for exercising every artistic faculty they possess. There is one more material, the use of which will contribute materially to the enrichment of a building, as permanent as those I have before mentioned: this is wrought-iron. Cast-iron is now becoming extensively used as a building material; but for external use, the more noble form of wrought-iron is the most appropriate way in which to use a most noble metal. The objection to wrought-iron is its costliness; and, where economy is a consideration, cast-iron will serve the purpose. But those who can afford to obtain beauty in material, as well as form, should certainly make use of wrought-iron only, externally.

There is one feature in modern house-building which I have not before noticed, and which is productive of much of the sameness and ugliness of it. This is the almost universal concealment of the roof. Now the roof is naturally one of the finest features in a building, and may be made the vehicle of much beauty. Its concealment, therefore, shows a radical ignorance of the artistic elements in house-building. It may be said to be a rule that the flatter the roof the uglier the house; and I question whether it is possible to produce a thoroughly pleasing design for a house or street, without making the roof or roofs a prominent and important feature in the design.

If, in the erection of the first few villa residences on the site of the new streets towards Burley, men of means, who have the taste and public spirit, determine to build really good houses, architecturally speaking, it will give the key-note to the character of the whole neighbourhood. One fine example of Domestic architecture, in or very near to Leeds, would revolutionize the house-building of the town. And I would again impress upon those who pay for the building of houses, that it is their own fault and their own punishment, when they furnish the means to an architect to build them good and substantial houses, if they also allow their architect to build ugly houses. The same sum of money which builds a substantial and ugly house will build a substantial and beautiful house; and it depends entirely on the proprietor which of the two he will have for the same money—comfort and ugliness, or comfort and beauty.

I presume it is unquestionable that the taste and skill exhibited by architects in designing houses are infinitely beneath the standard displayed by the same men in public buildings. If you take, as illustrations, a block of private houses and a public building designed by any one architect in Leeds, it will be seen that, whereas the latter in many cases has many decided claims to originality, and traces of thought and care in the design; the former will be a reproduction of former ugliness, and have the effect of being made to order, by the dozen or the gross. Now I utterly repudiate the idea that the cause of this is the difference in *cost* of the two, which may indeed result in very great difference of treatment and of materials employed; but the cost has nothing whatever to do with the character or amount of true art displayed in the design. It has no connexion with, nor does it in the smallest degree control, the quality of thought in the design: it *does* affect the means whereby thought and taste are expressed, but it does *not* preclude the exercise of them. Thought, taste, and originality may be made as evident in the appearance of a cheap house as in an elaborate and expensive public building; and that they are not as characteristic of one as the other, results from the two causes noticed;—that, in the first place, people do *not* demand the exercise of these qualities in the production of a design for a house, whilst they *do* demand it in a public building; and in the second, that architects, finding this to be the case, are very willing to be relieved from the exercise of these qualities. That there are architects in Leeds capable of designing beautiful house-fronts, at the ordinary cost of the present ugly ones, I am willing to believe; but that there are many who are inclined to spend more time and thought over a design than is expected of them, or than will satisfy their clients, the present state of house-building will decide.

This leads me to the belief that architects regard the designing of houses as beneath them, except in a few special instances; and that, though they have art power, they think it is not worth putting out in the design for a mere house—when the proprietor knows nothing of good taste, and will be very well content with the "usual thing." It is very natural that it should be so. Nothing is so troublesome as to have to think very deeply and to call up all one's powers of memory, and knowledge of difficulties conquered, and examples of successful design, and then turn to for many a weary hour and meet the special difficulties of the case, and alter, and re-arrange, and calculate the cost, and design finally a much better house than would have perfectly satisfied one's client. All this is very troublesome, and, being so, is not often resorted to by our architects. But the public demand for good taste is on the increase in England; and in many towns in Yorkshire is very far ahead of the Leeds demand. I need only refer to the New North-road, in Huddersfield, for an example of pleasing Domestic architecture. In this street there is great variety in point of style in the different houses: both Gothic and Classic examples are to be seen, frequently juxtaposed, and with an effect which is eminently satisfactory. One instance of a detached Classic villa is perhaps the most perfect specimen of Classic house architecture in England. But no two houses are alike where they are quite detached; and this is productive of a charm which, as far as my own experience goes, is without example in England. Yorkshire may well be proud in the possession of the New North-road in Huddersfield. The existence of that one street alone would relieve the county from a charge of want of appreciation of good Domestic architecture. Nevertheless, though Leeds is very far behind Huddersfield in this matter, there are not wanting indications of vital changes and unquestionable improvements in Leeds. In buildings erected within the last two years a revolution has been made. It is true that even now good buildings or even fair buildings are the rare exception; but that they exist at all is evidence of a feeling that we want something better than houses manufactured to order.

I have seen no house-front in Leeds which does not exhibit a certain amount of money spent on ornament, *i.e.*, in architectural features not necessary in the construction of the house. However cheaply a house is built, there will be a certain sum spent in an effort to relieve it from plainness. Now what I wish most emphatically to impress upon house-builders is this:—that, if they intend to spend but little on ornament, it should be spent *in* the construction, and not be added *to* the construction; and if so spent, the money which now adds heavy cornices to plain doors and windows, which carves a vulgar heavy keystone head in a front where nothing is in harmony with it, would, if judiciously applied in constructional ornament, pay for a chaste and beautiful, if not a highly elaborate, design. But this will necessitate much thought and much labour from the architect. Instead of the ornamentation being run by the plasterers over the doorway, or cast in their shop and then applied to the front, the bricks themselves would be made, by skilful arrangement and well-chosen variety in colour, highly ornamental; and this would be legitimate decoration, proceeding from the architect's brain, and not issuing from the plasterer's workshop. When stone cornices are used, they are too frequently an imitation of plasterer's work. Thus meanness begets ugliness, and ugliness perpetuates itself by frequent reproduction and close imitation.

BAD ADVICE.

A correspondent of a morning paper urges that the police or the public, in the event of a fire in the upper part of a house threatening the safety of the inmates, should at once ascend "the *next* house; on one or either side, if necessary, of the fire; and with crow-bar, pick-axe, or anything come-at-able, make an aperture or opening into the burning house through the partition walls, which at the upper part of a house are not very thick, and might quickly and easily be accomplished." Very likely: and the result would probably be, if the advice were thoroughly carried out, the destruction of the whole street, instead of one house. It is to be hoped that no one will act on the advice. The "party-wall" is the greatest safeguard the public has; and it must be preserved intact. If the machinery of the Building Act effected nothing more than the complete separation of every house from its neighbours by sufficient party-walls, it would pay for its cost.

CHURCH-BUILDING NEWS.

Highbury. — The memorial stone of Park Church, in Grosvenor-road, Highbury New Park, was laid on Monday, the 18th August, by Mr. John Henderson, of Park, near Glasgow. The church is being erected for the United Presbyterian congregation now worshipping in Myddelton Hall, Islington. It is in the Italian style, with a spire of about 160 feet high, and will be seated for 1,000 people. It is estimated to cost about 7,000*l.*, and is expected to be opened before the close of the present year.

Ilford.—Capt. Ibbetson has just erected, at his own expense, a chapel-of-ease at Chadwell, near Ilford, Essex, at a cost of 4,000*l.* The edifice was planned by himself, and built by his own labourers.

Oxford. — The new church in the hamlet of Whitty (attached to St. Giles's parish) has been consecrated by the bishop of the diocese. The edifice was built from designs supplied by Mr. H. Woodyer, of Grafham, near Guildford, and will accommodate nearly 700 persons.

Windsor. — The parish church has been reopened for divine service. The whole of the walls and pillars have been painted by Mr. Cooper, much of the labour gratuitously, as his contract was for plain painting only. The old iron stoves are removed, and apparatus for warming the church with hot water introduced. A system of ventilation has been adopted by an open cutting the whole length of the ceiling, with an air-chamber or flue above, carried up into the belfry tower, under the superintendence of Mr. Edgington. The churchwardens contemplate re-pewing the body of the church with open low sittings as soon as they have funds sufficient for that purpose. The pillars and arches of the church are painted of a lighter colour than before, and the walls in imitation of stonework. At the east

end this imitation has been substituted for the heavy oak-colour which was above the picture, and the glory which surrounds the sacred letters I.H.S. regilt.

West Cowes (Isle of Wight).—Within the last four months, at a cost exceeding 700*l.*, a new chancel, having three stained windows, has been erected in Holy Trinity Church; the whole of its mean and unsightly pews are removed; and their places supplied by uniform stained and open seats.

Wednesbury.—The foundation-stone of a new chapel, to be used by the Methodist Free Church congregation here, has been laid. The site selected is the junction of Stafford, Albert, and Dudley Streets, near the Great Western Railway Station. The edifice, which is designed in the Italian style, will be built of ornamental brickwork, with stone dressings, and is intended to accommodate about 250 persons. There will be no side windows, the chapel being principally lighted from the roof; but the front windows will be filled in with stained glass. The roof will be carried on columns, from which will spring circular ribs; and these, together with all the other timber used in the building, will be stained and varnished. The pews are arranged in circular form, and are raised one above the other from the centre of the building to the walls. The plans were prepared by Mr. S. Jellyman. The architect, however, is Mr. J. Taylor; and the builders are Messrs. W. Trow & Sons.

Hanford.—The chancel of the small church at Hanford has been rebuilt. The new chancel is 28 feet long, and 15 feet 7 inches wide. The east window is triplet, the centre light only of which is yet filled with stained glass, representing in three distinct pictures the Scourging, the Crucifixion, and the Entombment of our Lord. Beneath it is a reredos of marble and alabaster, divided into three compartments, the centre of which is occupied by a white marble cross, standing out from a background of green marble. The architect of the new chancel was Mr. Rushforth, of London; and, under him, the carving was executed by Mr. Earp; and the stained glass by Messrs. Clayton & Bell. The total cost of the work will be about 600*l.*

Barbourne.—The new church of St. Stephen's at Barbourne, founded by the late Miss Lavender, has been consecrated by the bishop of the diocese. The edifice has been a considerable time in course of erection, owing to an unavoidable delay in the execution of the contract. Mr. Preedy was the architect. The edifice will seat about 530 persons. The style is Decorated. The east window is filled with stained glass, in memory of Miss Lavender, who founded the church, and died while it was in course of erection, as we have heretofore mentioned. The subjects of the window are Moses lifting up the Serpent, Abraham about to sacrifice Isaac, the Crucifixion of our Lord, and His Resurrection, with angels, &c.

Publow.—About a year ago, the tower of the parish church was struck by lightning, and much damage done. The tower has been now restored by Mr. Streeter, of Bath, contractor, under the direction of Mr. B. Ferrey. The two broken bells have been recast by Messrs. Llewellyn & James.

Norton sub-Hamdon (Somerset). — The parish church here has been re-opened. The whole of the walls, piers, arches, and windows were covered with coat upon coat of dirty whitewash. This has been all scraped off, and the stonework exposed. The pews are replaced in the nave and aisles by open benches. The floors are paved with Keinton stone. The chancel is paved with Maw's tiles. There is a two-light pointed window in each side of the chancel. In the east end is a four-light window divided across the middle by a transom of tracery work, thus making the window into eight compartments, which are filled with stained glass, by Mr. Wailes, of Newcastle-on-Tyne. In the lower compartments are "The Birth," "The Dedication," "The Going up to Jerusalem," and "The Blessing of Little Children." In the upper compartments are "The Bearing of the Cross," "The Crucifixion," "The Resurrection," and "The "Ascension." The tracery of the head is filled with stained glass of a symbolical character. In the cill under the window is a brass plate, with an inscription to the memory of Maria, wife of Mr. J. M. Quantock, and her son, who was buried along with her, on the same day. The roofs of the chancel and nave are barrel-shaped and panelled. The ribs, which are of moulded oak, were covered with whitewash, and partially plastered over. This has been removed, and they are now oiled and diapered, according to the ancient intention, and bosses placed at their intersections. The old plastered panels have been taken down and replaced with new work, those in the nave of a buff colour, and those in the chancel of a grey colour. The roofs, both of the nave and aisles, are of oak open work, with moulded panels. Only about one-half of these roofs were completed before the restoration. The other parts are now made good and restored. The whole of the diapering, painting, and gilding, has been executed by the rector and his wife. Mr. Dendle, of Barnstaple, was the contractor. All the Ham stonework was executed by Mr. C. Trask. The architect was Mr. A. Blomfield. The glazing was done by Mr. Toleman, of Crewkerne.

Kington.—The architect of the new cemetery requests us to say that the chapels and lodge are *not* "in the Egyptian style," as first stated in the *Hereford Times* and communicated to us. If he had said at the same time what style they *are* in, he would have shown more consideration. Architects who desire their works should be correctly recorded should see that correct information be sent.

Mountain Ash.—St Margaret's Church, Mountain Ash, in the diocese of Llandaff, has been consecrated. Mountain Ash is an outlying part of the parish of Aberdare. The edifice is built on an elevated piece of ground, on the north side of the river. It is inclosed on the south side by iron palisading surmounted on stone, and there are two entrances west and south. The latter is approached by a flight of seven or eight steps, at the top of which is a porch in character with the French Gothic architecture of the building. There are a nave, south aisle, and chancel, which is terminated by an apse. Messrs. Prichard & Seddon were the architects; and Mr. Williams, of Llandaff, the builder.

Nantyglo. — A Calvinistic Methodist chapel and house have just been commenced at Nantyglo, Monmouthshire, under the superintendence of Mr. Hancorn, architect, Newport, Monmouthshire. The buildings are designed in the Italian style, rather freely treated, and will be erected of sandstone, the external courses being random ranged, with ornamental brickwork also introduced: the dressings will be of freestone. The roof is ceiled above the collar beam, which shows in the chapel wrought and moulded trusses extending under the same some way below the wall-plate, where they are supported by carved freestone corbels. A moulded wood cornice will run along both sides of the chapel. The seats will be low, with sloping backs. A reading-desk and platform, instead of the usual pulpit, are contemplated. The woodwork throughout the chapel and house will be of red deal, stained. A gallery at one end only of the chapel is intended. The contractor is Mr. Philip Watkins, of Brynmawr.

STAINED GLASS.

St. George's Chapel, Windsor.—The stained glass in the eastern window of St. George's Chapel is being removed, preparatory to the reworking of the old jambs, mullions, &c., for the reception of the memorial window to the memory of the late Prince Consort. Mr. Scott is the architect, and the window will be in the Gothic style. The artists selected for the stained glass are Messrs. Clayton & Bell. There will be fourteen new mullions in addition, making fifteen lights. The window will thus be similar to that at the west end of the chapel. The window has been hoarded from the chapel, with felt, to prevent sound or the weather entering during the process of the work.

Presbyterian Church, Islington.—Eight stained glass windows, by Messrs. Heaton, Butler, & Bayne, of London, have been placed in the new Presbyterian Church, Upper-street, Islington, which was opened on Wednesday, the 20th. Two of the four three-light windows in the transepts were presented by Mr. Chamberlayne. The subjects are the "Parable of the Talents" and the "Good Samaritan." The two others illustrate the "Faithful Steward," and "Christ blessing Little Children." These are the gift of Mr. Alderman Lawrence and Mr. Warren, respectively. The west window has four lights, and is to commemorate the expulsion of the two thousand clergy. The principal subjects are "Christ's Charge to the Apostles," and the "Calling of Peter, James, and John." Above these are four of the principal events from the life of St. Paul; and below, the "Martyrdom and Burial of St. Stephen," "Peter and John imprisoned," and "Peter released by an Angel." In the tracery are the "Crucifixion," the "Agony in the Garden," and the "Three Marys at the Tomb." In the chancel are the four Evangelists, and over the reredos a Decorated rose-window. Mr. T. Clarke was the architect. The windows were designed by Mr. R. T. Bayne.

Llanelian Church, near Rhyl, North Wales.—The east and west windows of this church have been filled with stained glass by Messrs. Ballantine & Son, of Edinburgh. The east is a three-light window, and is erected in memory of Mr. J. L. Wynn, of Coed Coch. In the centre light is our Saviour on the Cross; and in the side light are the Marys, St. John, and other spectators of the Crucifixion. In the base of the subject, several monograms are introduced. The west is a four-light memorial window. The lights contain the figures and emblems of the four Evangelists. One of the side windows has also been filled with stained glass of a simpler character.

MR. FACON WATSON'S PICTURES.

In Mr. Watson's Gallery, opposite St. James's Hall, in Piccadilly, will be found what must be considered a very remarkable collection of pictures,—the more remarkable because none of Mr. Watson's works have been exhibited before; so that even those best acquainted with what goes on in art works may hear of Mr. Watson for the first time. The works, landscapes, are for the most part in water-colour; and, according to the painter, in "a new style of art;" no body-colour being used. Painted on the spot with such minute care that every tree, as in "The Woodland Well" (the hazel, the oak, and the birch); and every wild flower, as in "Light and Shade" (the dandelion, the red-dock, the buttercup, and groundsel), may at once be recognized; they display a power and brilliancy quite extraordinary. Exceptions may of course be taken; but we are not at all disposed to speak of short-comings in the face of such remarkable industry and perseverance. The artist worked in the woods for many months to prepare some of these pictures for the International Exhibition, but was shut out, to his great disappointment, by the rule which admitted only pictures that had been previously exhibited elsewhere. He was therefore driven to exhibit them himself.

We would, in the best spirit, suggest to Mr. Watson that he should let some discreet friend revise his descriptive catalogue, if only out of deference to the prejudices of critics, who always read high-flown language with doubt. The pictures are quite clever enough to make their own way.

THE EMBANKMENT OF THE THAMES.

The Royal Commission for inquiry into the best mode of embanking the Thames, and improving the communications between the east and west ends of the metropolis, has been re-appointed. This time the object is to connect the western end of the road at Westminster Bridge to Milbank, and to consider the best mode of making a road from the eastern end at Blackfriars to the Mansion House, which was part of the original scheme, but which was left out of the Bill of last session. The *Observer* says, the Metropolitan Board of Works have decided to proceed at once, and with spirit, with the great work intrusted to their care. It is in this way that they will earn the best reputation for activity, and redeem the character which they lost by delay or indifference to works of undoubted public utility. They will proceed with the construction of the sewerage and the embankment, and also the streets and roads leading thereto, which they are empowered—and therefore enjoined—to construct.

Oddly enough, Sir J. V. Shelley, M P. for Westminster, has come out simultaneously with a letter advising the Metropolitan Board to avoid making the street from Hungerford Market to Lancaster-place, which is provided for in the Act, and which Sir J. Shelley in the committee vainly attempted to defeat. But the Metropolitan Board will not only make this street, as they are bound to do, but we understand that they are also disposed to consider favourably a suggestion of Lord Redesdale, supported by evidence, but not in the plan, of a street in continuation of Duncannon-street to the embankment across Villiers-street at the west end of the Adelphi-terrace.

ARRANGEMENTS TO PREVENT FIRE.

Mr. M. Allen, of Shoreditch, has taken out a patent for the "construction of buildings for the prevention of fire." The patentee proposes to construct buildings in an improved manner by economizing the space which the staircases usually occupy, and to render them fireproof by dividing or insulating the staircases from the building of which they form a part. This he proposes to accomplish by arranging the stairs (which are to

be made of incombustible materials) in a recess formed in the outer wall of a building; which recess is to extend from the foundation to the roof, and have no opening whatever on its inner side; but it is to be provided, where necessary, with openings or doorways on its outer face, leading to balconies (which are also to be formed of incombustible materials) fixed at the level of, and giving access to, each of the floors or flats of the building. By means of this arrangement of staircase and balconies, each floor will be rendered totally distinct from, and independent of, that one below or above it, so far as regards any internal communication therewith or therefrom. The invention also consists in obtaining and forming a new material for building purposes, by the combination of cinders, slags, coke, culm, clinkers, or other calcined substances of similar character thereto, possessing an irregular, uneven, or porous surface, with Portland or other cement. Long ago it was suggested in this journal that the formation of circular staircases projecting from the back or side of the houses, as is not uncommon in Scotland, with stairs of incombustible material, would tend materially to lessen the spread of fire, besides ensuring safe means of transit for the occupants of a house on fire.

CHURCH SEATS.

SIR,—Without wishing to depreciate the merits of Mr. Brown's clever design for a "comfortable church pew," as set out in the diagram published in your nnmber for July 12, p. 496, I must beg leave to protest against it as a design to be copied in any *church* on this side the Tweed, wherein the congregations are all supposed to "worship and fall down and *kneel* before the Lord our Maker." As *kneeling* is not the use in the Scotch Kirk, it is plain enough that the occupant of such a pew as the one represented will find the construction as comfortable and composing as a domestic easy-chair in his own parlour. The footboards of two heights are evidently not intended for knees: plumbing, as they do, with the edge of the book-board above, any person attempting to use them for knees would soon find himself painfully wearied.

In the large three-aisle church of Braunton, North Devon—rich in beautifully carved bench-ends of the fifteenth century—the backs of all the old seats are sloped; and the usual level book-shelf, and open space under the seats, afford every accommodation for sitting, kneeling, and standing, as can be desired by the most consistent member of the English Church.

H. T. ELLACOMBE, M.A.

MIDDLE-CLASS RESIDENCES IN LONDON.

PRAY permit an old subscriber space to ask a question of the intelligent profession of which you are the esteemed organ, on a subject which nearly concerns me and many similarly circumstanced.

How is it that, in the prodigious advance made by that enlightened body in architecture in London, no one of them has thought of building a house such as those who have lived in warm countries, and, indeed, I may add, such as men of refinement and common sense, would wish to inhabit, having a rental proportioned to an income of 1,500*l.* or 1,600*l.* a year?

The number of this class is very large,—sufficient to people a whole district, and well worth securing the patronage of. Those from India, China, and Australia, alone, would fill a considerable town.

I have been seeking a house to purchase for the last two months; and such as I want I shall describe. I require a residence of not more than 200*l.* or 250*l.* a year rent, with four rooms on the ground-floor; a small or business room near the entrance; a breakfast-room or study; a dining and a drawing room—the last named of at least 33 feet × 22 × 16, and surrounding a hall so broad —say 12 feet—as to be a reservoir for the pure fresh breezes of summer and the warmed air of winter. Above, five or six chambers, 14 feet high; and over these, rooms for servants, a lift, tank, lumber, &c. The basement, if such must exist, incommunicable with the house, except at back; and this region, as well as the whole upper part, made as perfectly fireproof as science permits.

It is indispensable that every one of the principal apartments should be large and lofty, and of the most perfect proportions, as a matter of economy; for, while the simplest adornments set off a fine room, the most costly fail to beautify an ugly one; and all must be blest with as profuse a supply of light as England's sun will allow. Such a house would answer a man of moderate fortune, say 1,500*l.* or 1,600*l.* a year, out of which he could fairly afford 200*l.* or 250*l.* a year for rent. I would greatly prefer having the kitchen offices at back, for the servants' sake; and over the door of such a house I think the word "comfort" might be written.

Of the several dozens of houses I have examined I have not met with a single one that possesses a single requirement of those I have specified; and surely the fault does not lie either in want of knowledge or lack of remuneration. The first is every day supplied in the plans of our country houses; and the second, I infer, does not exist, from a circumstance of which I am cognizant. Upwards of twenty years ago the "building foreman" and the "decorating foreman" of a large firm in London joined to build two houses on their own account, and on partly borrowed capital, in a neighbourhood then close to London. These they sold at a profit, and built others; and eight years since, one of the partners having died, the other retired with a clear annual income of 50,000*l.*, representing a million of capital.

If it be impossible not to admire the beauty of the decorations of the outside of houses recently built and a-building on the outskirts of London, it is equally impossible not to condemn the inside arrangements. Fancy a hall, in a house price 4,500*l.*, of 6 feet wide, and blocked up at the end; a drawing-room 45 feet long, 16 feet wide, and 12 feet high, and of course all the rest in proportion. Another, taking 102 steps to reach the topmost rooms. Another, with a drawing-room 45 feet square and 13½ feet high, with a heavy cross-beamed ceiling, in squares (which seems to be the *ne plus ultra* of English decoration); and only one having the slightest provision of water against the sudden outbreak of fire; the upper stories of some of lath and plaster; and few, except those of from 600*l.* to 900*l.* a year, having stone steps throughout.

There is not the slightest difficulty that I see in making a house fireproof at the present day, and at a cost absolutely insignificant to the builder, or at least to the buyer. Every ceiling can be arched (to support almost any weight) by the Italian method, without expense; stone or terra-cotta, or brick faced with tile, will supply the stairs; floors of silicated wood, which is absolutely incombustible; door-frames of terra-cotta, and doors (kitchen, &c.) of sheet iron, and shutters of the same; lobbies and passages of tile; and the ceiling of the whole upper story of Italian arch, or of common brick, on curved iron rods. Builders say the increased expense would deter purchasers—that it could not be done, &c. The most instructive observations on iron girders in your journal of August 16th give the clue to another and, I believe, truer answer. Builders, like ironmasters, are satisfied with their present immense profits. Change is bad. Fire-proof lofty rooms cannot, like the iron girders, be made, and won't pay: everybody is too poor, including those who give 8,000*l.* and 9,000*l.* for houses, that did not appear to me to cost even the half in building, &c. Yet, sir, from my own instance I know that an architect never laid out his money better than in building middle-class houses, the plan of which cannot be improved upon, and in which health is secured, safety guaranteed, and taste and refinement continually gratified.

A RETURNED EMIGRANT.

BUILT TO SELL.

SIR,—As few countrymen who settle in London are up to the sham materials and workmanship of the "Duffing Builder," will you kindly place the following hints before your numerous readers, to save them from being duped?—

1. Let them see that the house is not built on made soil, where the gravel has been dug out and sold.

2. That it has concrete foundations of proper depth.

3. That *all* the materials are new, and the bricks not place.

4. That no iron chimney-bars supporting the arch are absent.

5. That the drainage is connected with the main sewer.

6. The strength of joists, uprights, thickness of floor-boards; in short, quality and quantity of timber used.

7. Whether the grates, ironmongery, and other fittings are of the very cheapest description, and unfit for wear.

8. Avoid zinc gutters and cisterns. Zinc, as usually laid, is a very temporary affair. Insist upon lead or stone cisterns, &c.

9. Find out if it is an estate where any scamping is allowed to create heavy ground-rents.

10. Insist upon a warranty from the builder or seller, with specification attached, subject to penalties if false.

Being a daily witness of the scamping manner houses burdened with ninety years repairing leases and heavy ground-rents are run up by the "duffing" builder, merely for sale, to dupe the unwary, who invest a life's toil oftentimes in property daily needing repairs and rebuilding, likely at any time to fall (a very common occurrence of late), I would warn and caution all against "sale houses." I can point out "villas," not four years old, where you can see cracked window arches, bulging walls, sinking soil, and the most rapid decay; but I will not trespass on your space, as I am sure you must perceive that even this slight exposure may lead to better works. W. T.

TO DESTROY ANTS, BLACK BEETLES, &c

FOR the information of your correspondent of last week, and your numerous readers, I beg to state that I have used the following simple remedy for the destruction of ants and black beetles, for many years, and I have never known it to fail:—Take some unslaked stone lime (say half a bushel): lay in a heap upon a stone or brick floor; then take about a pound of sulphuric acid, and put into it a pint of water. With this liquor sprinkle the lime gently until the whole drops into a dry powder; throw this powder plentifully down the holes and about the places where the vermin come. If every householder in London were to use this powder, there would not be a black beetle in London.

A POOR MAN.

THE LAKES ROUND THE VICTORIA DRINKING FOUNTAIN.

SIR,—I have but little doubt that nearly all who have seen the beautiful drinking-fountain in Victoria-park have admired it; and I do consider the effect from a little distance very good. But upon advancing, the paltriness (in my opinion) of those "fancy lakes" round it soon becomes apparent. The shape of them, and the way in which they are arranged, is not bad; but they are shallow and quite stagnant. They appear to be about 2 feet deep in the deepest part; and the bottom is nothing but clay, and not fine gravel, as in the large lakes. The last time I saw them (about three or four days ago) the water was thick and yellow, and a kind of oily scum floating on the surface.

I should think it would be far better to have flower-beds tastefully arranged, or else the water to run quite round the fountain, and to have small bridges. As it is now it looks very bad.

AN OLD SUBSCRIBER.

Books Received.

An Illustrated Lecture on Sketching from Nature in Pencil and Water Colour. By GEORGE STUBBS. With 17 Plates, tinted. London: Day & Son, Gate-street.

Handbook of Elementary Drawing. By ROBERT HALE, Head Master of the Burnley School of Art. London: Longman, Green, & Co. 1862.

MR. STUBBS'S lecture and illustrations are intended chiefly for masters to use in their schools; but they may serve also as a work of preparatory instruction for those who would endeavour to obtain, without the assistance of a master, the power of sketching from nature. The suggestions are sensible and tolerably clear. It is to be hoped, however, that students will not content themselves with copying the studies given as examples, bold and good as they are, but will really go to nature and represent what they see. To copy what somebody else has drawn is, after all, but a very trumpery affair, and must only be regarded as preparative.

Mr. Stubbs mentions a fact we have often observed, and which may serve to encourage the young sketcher from nature: "If the drawing is unsatisfactory, which it very likely will be, do not destroy it, but take it home and put it by. In a few days, on referring to it away from nature, it will appear to have improved, and will look less discouraging, because everything done carefully and conscientiously after nature will always contain some degree of truth, and, consequently, possess some value and merit."

The Elementary Handbook contains some practical suggestions for the promotion of drawing classes in public schools; and all that tends that way does good. It consists mainly, however, of a set of outline studies as copies, chiefly from leaves of plants; and there are so many of such outlines already obtainable that the necessity for the publication of this volume is not very obvious.

Miscellanea.

Proposed Exhibition in Spain.—The committee appointed by the Queen of Spain to organize at Madrid a Universal Exhibition, similar to those which have been held in London and Paris, has issued a notice that it will receive plans for the construction of the building.

Loughton, Essex.—Schools for boys, girls, and infants, to contain 200, are about to be erected from the designs of Mr. Thomas Henry Watson, architect; the style Early English, and the cost about 1,200*l.* A fancy-fair was held in the rectory grounds on the 6th and 7th instant, at which nearly 300*l.* were collected.

Cheap Alcohol.—A method of extracting alcohol from coal gas is said to have been discovered at St. Quentin by a young chemist named Cotelle. The report of this discovery created a sensation among the manufacturers, and large sums are said to have been offered by various parties to the inventor for his patent. The *Progrés de l'Oise* asserts as a matter of fact that a joint-stock company has been formed with wonderful rapidity, with a capital of 400,000f., to carry out the patent. The inventor announces that he can sell his alcohol at 25f. the hectolitre, while the most inferior spirit produced from other articles is selling for 75f. the hectolitre.

Somerset Archæological Society. — The fourteenth annual meeting of this society commenced on Wednesday week at Wellington. The usual temporary museum was held at the National School. The major portion of the contributions were sent by Captain W. A. Sanford, of Nynehead Court. Amongst his numerous articles was a collection of some "200 Roman coins found on the beach at West Australia, about thirty miles above Freemantle." The business meeting took place at mid-day, under the presidency of Mr. E. A. Sandford. The meeting passed a resolution to promote the interests of the British Association at Bath. The Rev. Mr. Hugo read a paper "On Cannington Priory;" and Mr. J. H. Parker one entitled "Gleanings from Antiquities at Wells."

Laying Wooden Floors.—Mr. R. Bellis, of Chester, builder, has recently patented "An improved method of laying wood floors." The invention consists in fixing, at one side of the joists on which the floor is to be laid, angle iron, one face of which is made to project from the joist below the level thereof; and in inserting into the underside of each deal or board composing the floor, T-headed screws, one arm of which, on the boards being laid, becomes engaged under the projecting flange of the angle iron. The ends of the boards are wedged up against the side of the room or building being floored. By adopting this method the joints, through the shrinking of the boards, it is remarked, can be easily closed. They can be taken up for the purpose of laying in gas, water-pipes, or bell-wires; and as nails are not required in the fastening, the floors will be equal to a dowelled one, and much cheaper. The boards need not be laid until the ceilings and plasterings are finished, as the fastenings are T-screws and angle iron, screwed to the joists.

Building Prospects at Aldershott.—There is great want of house accommodation at Aldershott, it appears. Married officers, with their families, have to put up with the most wretched accommodation, at prices which in the most fashionable part of London, and in the height of the season, would be considered exorbitant; and for those few houses or apartments which are to be let in the neighbourhood the competition is so very great that extravagant demands of all sorts are readily complied with. There is talk, however, according to the *West Surrey Times*, of the formation of a company for the purchase of land indicated, and the erection of suitable villa and other residences. "If the plan in its integrity should be carried out," says our authority, "it will probably embrace the building of cottages also for the labouring classes. There are from 800 to 1,000 of these employed at the Camp; and as much as 4s. a day is constantly paid to farm labourers, owing to the distance between their homes and the place of their employment. Within the last five years, the population of Aldershot proper has increased from 400 to upwards of 5,000; and we venture to prophesy that, in a few years, there will be a town established with not less than 10,000 or 12,000 inhabitants." We observe that this and other papers usually mis-spell the name of Aldershott, which till now has always been spelt with two t.s. Why spell it wrongly now? The name has nothing to do with the "shot" which is doubtless very lavishly expended there.

The Albert Memorial Window at Leominster.—Sufficient subscriptions (including a single light from the clergy, amounting to 30*l.*) have been received to place in the church at Leominster a stained east window, to the memory of the late Prince Consort. The cost of the window will be about 700*l.*

Consumption of Nails.—The number of nails manufactured in Bromsgrove is so enormous, averaging about ten millions weekly, that the wonder is that such vast quantities should be wanted. As an example of the numbers required, the *Worcester Chronicle* states that in the erection of the Great Exhibition building 200 tons were used; which, upon a fair computation, would give about thirty-three millions and a half of nails.

Rating in the International Exhibition. An important question came on Monday before the board of trustees for the parish of Kensington. The contractors for the supply of refreshments at the International Exhibition have been assessed to the parochial rates—Messrs. Morrish & Co. on a rateable value of 14,217*l.*, and Messrs. Veillard & Co. on a rateable value of 14,653*l.* Both parties appealed against the rating, partly on the ground that the Commissioners of the Exhibition were the proper parties to be assessed, and partly because of an informality in the rate. It was stated that the amount of rates in Messrs. Morrish's case would be 918*l.* 3s. 7d.; and in the case of Messrs. Veillard & Co., 946*l.* 6s. 9d. The board decided that the assessment should be confirmed.

The New Workhouse for Oxford.—At a special meeting of the local guardians, to receive a report from the building committee, and to select a plan for a new workhouse, the chairman stated that they had three plans from gentlemen who had endeavoured to submit designs for an efficient and good workhouse; and the committee were really not in a position to report its opinion on the merits of those plans; but, whatever the result of the competition might be, he might congratulate the board on having received three superior plans to any sent in before. When competition was severe there was the greater necessity for the discussion of details; for a race was often won by a nose, but it required an accurate eye to detect that nose. It was ordered that the further consideration of the plans be entered upon at an adjourned meeting of the board.

An Ancient Baker's Last Batch.—We learn from *Galignani*, and other sources, that a curious discovery has just been made at Pompeii. In a house in course of excavation an oven was found, closed with an iron door, on opening which a batch of eighty-one loaves, put in nearly eighteen hundred years ago, and now somewhat overdone, was discovered; and even the large iron shovel with which they had been neatly laid in rows. The loaves were but slightly overbaked by the lava heat, having been protected by a quantity of ashes covering the door. There is no baker's mark on the loaves: they are circular, about nine inches in diameter, rather flat, and indented (evidently with the baker's elbow) in the centre; and are slightly raised at the sides, and divided by deep lines radiating from the centre into eight segments. They are now of a deep brown colour, and hard, but very light. In the same shop were found 561 bronze and 53 silver coins. A mill, with a great quantity of corn in excellent preservation, has also been discovered.

Schools of Art in Scotland.—From the returns relating to institutions for the promotion of science and art in Scotland for the year 1861, we take the following: — The total number receiving instruction in drawing in or through the agency of the School of Art at Dundee, during 1861, has been 2,558, showing a total increase of 196 since last year. This number includes 2,062 children of public schools, paying 51*l.* 10s.; 125 school teachers and pupil teachers, paying 8*l.* 7s. 3d.; and 371 students, who have attended the central school, from whom 301*l.* 15s. 4d. has been received. The total amount of fees has been 361*l.* 12s. 7d., showing an increase of 95*l.* 7s. 5d. over the sum received last year. The total number receiving instruction in drawing in or through the agency of the School of Art at Aberdeen, during 1861, has been 1,576, showing a total increase of 72 since last year. This number includes 1,140 children of public schools, paying 61*l.*; 170 students of private schools, paying 120*l.*; 9 school-teachers and pupil-teachers, paying 1*l.* 16s. 8d.; and 257 students who have attended the central school, from whom 105*l.* 16s. 6d. have been received. The total amount of fees has been 288*l.* 13s. 2d., showing an increase of 9*l.* 16s. 7½d. over the sum received last year.

Gallery of Illustration.—Mr. and Mrs. German Reed, with Mr. John Parry, are giving their entertainment, "The Family Legend," with increasing success. Time has enabled them to remove little incongruities, and has added finish to the whole. It is very clever; and, better still for the purpose, very amusing.

Foreign Workmen in England.—Mr. Blanchard Jerrold states that the visits of foreign workmen and of foreign industrial students which have been paid up to this time, have been attended with the most gratifying results. Our French visitors of the industrial and manufacturing classes, he says, are delighted with the cordiality, the frankness, and the liberality with which British manufacturers have met them. There are to be four banquets to foreign workmen in the Great Exhibition Building. The first of these banquets took place on Tuesday last, in the British Refreshment Department, and was chiefly addressed to French workmen. The tariff was 4s. per head.

Filthy State of the Edinburgh Streets. No one who witnesses the filthy state of some of the streets in Edinburgh, says the local *News*, will be surprised at the extent of disease amongst the lower classes of our population. Rubbish and filth of all sorts are allowed to accumulate, principally in the narrow streets and lanes of the city; and there it lies unheeded till the smell of putrified matter becomes to keen even for the scavenger himself, who then removes it by a sort of compulsion. The High-street itself is often by no means an exception to this rule; and when such a state of matters is tolerated under the very nose of the authorities, fancy the smells and annoyance which must be endured by the inhabitants of the lanes and byways. It is indeed time that some measures were adopted to keep the streets in a more cleanly condition; for if fever, cholera, or any other form of disease once break out, its progress will not speedily be arrested.

Monumental. — A monument to the late Richard Oas'ler has just been erected in Woodhouse Churchyard, Huddersfield. The memorial is Gothic in design, and from a base of 3 feet 6 inches rises to a height of 14 feet. It is decorated with moulded panels, with carved spandrels, crockets, and finials. The work has been designed and executed by Mr. R. Garner, of Huddersfield. The monument has been raised almost entirely by the working classes; and the subscriptions collected by a committee of working men.——The Wallace Monument, at Stirling, has now attained an elevation of about 30 feet. It is expected that before the close of the season at least fifteen feet more will be added.——The public drinking fountain, erected as a memorial in Dublin of the late Sir P. Crampton, surgeon, has been inaugurated. It bears the following inscription, written by the Earl of Carlisle:—"1862.—This fountain has been placed here, a type of health and usefulness, by the friends and admirers of Sir Philip Crampton, bart., Surgeon-General to Her Majesty's Forces. It but feebly represents the sparkle of his genial fancy, the depth of his calm sagacity, the clearness of his spotless honour, the flow of his boundless benevolence." Somewhat strong this?

The Drinking-Fountain Movement. — A drinking-fountain, the gift of Mr. H. B. W. Wynn, of Llanforda, has been formally presented to the inhabitants of Oswestry. The fountain, in the Italian style of architecture, is in the form of a cross. Below are three troughs for dogs, and above the bowls is the pedestal, enriched with carvings of the water-lily, from flowers of which the water runs. On the frieze of the cornice is the inscription.——A fountain has been opened at Nailsworth, which has been erected by public subscription in memory of the late Mr. William Smith. The cost will be nearly 100*l.* The design was by Mr. G. F. Playne, and the fountain was built by Messrs. Daniel Baker & Sons, of Brinscombe. —— A drinking fountain has been set up in the Strand, on a small piece of ground taken out of the St. Clement Danes' churchyard, on the south side, at the expense of Mr. Joseph Bond, many years an inhabitant of the parish. It is intended as a memorial of the donor's wife. It includes a kneeling female figure with wings, in Sicilian marble, pouring water into a basin below, and a pedestal of polished red granite. In the panels on either side are engraved in gilt letters the words, "In memoriam," and round the upper part "Presented by Joseph Bond." The fall of the water (which seems to be a difficult thing to manage properly) is not quite what it should be, as it is difficult to get a cup full without wetting the hand. Although not a work of high art, this fountain is superior to many that have been put up.

The New Guard-room in Windsor Castle.—The exterior of the new Guard-room in the lower ward is now completed. In addition to the Guard-room for private soldiers, the Garter Tower at the north end has been carried up to the top of the coping from the ground line of the Castle-yard; and the height of the tower altogether, as seen from Thames-street, is now 64 feet. The architecture is said to be in strict keeping with the Early English style of the ancient tower. Above the officers' apartment is a room 32 feet by 30 feet, intended for a museum, to contain memorials of antiquity and interest in connexion with the castle.

Tranmere Land Society.—The Tranmere Working Men's Freehold Land Society, Cheshire, held their second annual meeting on the 18th inst. All the shares have been taken up, and a sufficient sum is subscribed to enable the trustees to obtain the title of half the estate. Some of the shareholders have already commenced to build on their lots, and others are preparing to do so. The estate is divided into 387 lots, averaging 100 square yards each, excepting 19 lots facing Old Chester-road, which, from the superior nature of the site, it was deemed advisable to make into double lots of the value of 40*l.* instead of 20*l.* The streets are laid out 12 and 10 yards wide; the latter having a setting back of six feet on each side; making the width between the houses 14 yards. The surveyor of the society, Mr. T. Mellard Reade, is arranging plans for several classes of property to be erected upon the estate.

Ogle Mews Ragged Schools, London.—On the 26th, the foundation-stone of these schools was laid by Sir Robert Walter Carden, in the presence of a large number of visitors. The site of the new schools is in Ogle-mews, St. Marylebone, and has been granted by the Duke of Portland at a nominal rental. On this the new building is now being erected, and will accommodate 300 children. It will consist of boys' and girls' school-rooms, each 33 feet by 19 feet, and 15 feet high; library and committee rooms, 23 feet 6 inches by 13 feet, and 12 feet high; governess's room, washhouse, 17 feet by 7 feet, and all the usual appurtenances. The building, designed by Mr. W. P. Griffith, F.S.A., architect, will be of brick with stone dressings, and will cost, with attendant expenses, 1,000*l.* Sir R. W. Carden said it was impossible to over-rate the value of ragged schools; and, would it be believed that, twenty years ago, there was not one in existence in London? Since that time their value had been discovered, and there were now 175 ragged school buildings in London. There were also 202 Sunday schools, with 25,000 scholars; 172 day schools, with 18,000 scholars; and 211 evening schools, with 9,000 scholars. They had also latterly established 3,600 industrial schools, and had 2,800 voluntary teachers, mostly women.

Gas.—The fifty-first half-yearly meeting of the Cardiff Gaslight and Coke Company has been held. The report stated that they had reduced the maximum charge for gas in the borough of Cardiff from 4s. 3d. to 3s. 10d. per 1,000 cubic feet: they had also made a very considerable reduction in the charge for meters hired from the company. The directors trusted that the reduced charge would lead to an increase in the consumption of gas, and hoped they would, at no distant period, be enabled to announce a still further reduction. The usual dividend on the old and new shares was declared.——The Liverpool Gaslight Company's report showed a surplus, after payment of the year's dividend, of 6,970*l.* 19s. 7d., from which sum there will be taken 4,124*l.* 5s. 10d. to the reserved fund. Owing to the continued increase in the consumption of gas, and the present state of the company's accounts, the directors recommended that the prices be reduced 2d. per 1,000 cubic feet, and in the out-townships, 3d. per 1,000 cubic feet. This reduction will make the price, within the borough, 3s. 7d., and in the out-townships, 4s. The report was adopted, and a dividend for the half-year of 5 per cent. declared. ——The Lewes Gas Company's report was "of the most gratifying nature," showing that the profit to the dividend account during the year had amounted to 1,362*l.* 15s. 1d. They recommended 300*l.* to be transferred to the reserve fund, and that 1,032*l.* 6s. be divided among the shareholders, which would be at the rate of 9 per cent. The introduction of clay retorts, instead of iron, it was thought would be a permanent advantage. They recommended the shareholders to reduce the price of gas burnt by meter from 5s. 5d. to 5s. per 1,000 feet, and the public lamps from 65s. to 60s. each. There had been an increase in the consumption of gas. This was owing no doubt to the reduction of price. The report was adopted.

Caistor Church.—As the work of the removal of the pews, preparatory to the restoration of the church, progresses, evidences of the antiquity and pristine beauty of the edifice are continually being brought to light. During the earlier part of the work the remains of a carved chancel screen were discovered, inclosed between two pews near the pulpit; and remains of another, of the series of Hundon monuments, have turned up near the font. Under one of the mullions in a window in the porch a curious, and apparently ancient, carved stone was discovered.

Jerusalem.—The *Journal de St. Petersbourg* gives details respecting the works now in course of execution in Jerusalem and Palestine under the auspices of the Russian Government. A piece of ground outside the walls, on the Meidan, belonging to Russia, and containing nearly 16,000 square yards, has been inclosed by a stone wall, several houses erected in it, and four tanks constructed for a supply of water. The Cathedral of the Holy Trinity is ready to receive its cupolas; and a large house for the Russian ecclesiastical mission has been nearly completed. A hospital to receive sixty beds has reached the first floor: the next story will be finished during the year; and the foundations are laid for an asylum, capable of receiving 300 male pilgrims. Inside the city, the ground belonging to Russia, near the Holy Sepulchre, has been cleared of the rubbish which covered it to the height of 35 feet. During these excavations remains of porticoes and pillars were found, which formed part of the principal entrance to the Temple of the Holy Sepulchre in the time of Constantine.

Bucks Architectural Society.—The annual meeting of this society has been held. The members and their friends assembled at the Brick Kilns, near Hartwell, where Professor Morris met them. They then visited the various clay, sand, stone, and other pits on Dr. Lee's estate; and in their progress the professor explained the various geological strata, their formation, and the causes of them; and after a walk of three hours and a half they arrived at Hartwell House, where they inspected the museum and other parts of the mansion. Dr. and Mrs. Lee entertained the party (about sixty) at luncheon. They then returned to Aylesbury, and met with an accession to their numbers in the assembly-room of the White Hart Hotel. Here a temporary museum had been formed of curiosities, principally of antiquities found in the county. Archdeacon Bickersteth, V.P., took the chair, and after the formal business of the society was transacted, introduced Professor Morris, who gave a lecture on the geology of Aylesbury, Hartwell, &c. The Rev. Mr. Travers then read a paper on Stukeley Church (Norman), now in course of restoration, under Mr. Street. Several other papers were deferred, owing to the lateness of the evening.

The Pneumatic Despatch Company.—The second ordinary meeting of this company has been held, the Duke of Buckingham in the chair. The report of the directors stated that arrangements had been come to with the London and North-Western Company for the carriage of parcels at a speed not less than fifteen miles per hour, and at a rate of charge not exceeding the present rate. The railway company are also to grant sites for stations at Camden and Euston rent free. The Despatch Company will have to lay down a 4-feet tube to connect the Camden and Euston stations; also a line from the latter station to a station in High Holborn; also a line thence to a station at the intended new market in Smithfield; and thence to a station in Gresham-street. The directors regretted that they had not been able to make arrangements with the Post-office or the Government departments. The experimental tube now at Battersea would be laid down between Euston-square and Eversholt-street, Somers Town, in two or three months. The estimated cost of the proposed works, plant, and machinery, is 131,260*l.* The annual receipts would be about 20,800*l.*, and the expenses 10,900*l.*, leaving a net profit of at least 7 per cent. per annum. The report was adopted, but not without an opinion being expressed that the system would not answer, and that it would be better to wind up the concern, and divide the money in hand.

The Salters' Almshouses.—Sir: I should feel obliged if you would correct an error that was advertised by the Salters' Company in your columns. The design selected in competition for the Salters' Almshouses, out of the thirty-five submitted, was prepared by Mr. J. Collier and *myself* (not as advertised); and is now being carried out at the sum of 5,150*l.*, including some additional work ordered by the court.

Thos. T. Sorby.

Institute of British Architects.—Mr. F. T. Dollman has been appointed to the vacant office of librarian. There were nine or ten candidates.

The Crompton Memorial Statue for Bolton. Great preparations have been in progress for the inauguration of this statue. The stone base has been dressed and placed on its site in Nelson-square, about half of the area having been covered with the asphaltum coating. For the stonework of the eight ornamental lamp pillars about the square Mr. Pickersgill's tender of 4*l.* 15s. was accepted. The great stone base was taken from a block 24 feet long by 14 broad, and 8 feet 6 inches deep; estimated to weigh 180 tons, and to be capable of yielding eight stones such as that for the base of the Crompton statue.

The Reservoir at Chatham.—We are glad to hear from parties connected with the water-works that the accounts given of the accident to the new reservoir are much exaggerated. It seems that this reservoir is near to and in connexion with another, which is daily in use for the supply of the towns, by means of a branch on the service main, on which is a sluice-cock. This cock being opened, water could flow into the new from the old reservoir by way of the town-service mains; and it appears that by this channel it became filled before it was quite finished, through some misapprehension. The damage, however, it is stated, is very small.

The Indian Inland Steam Traffic.—We are glad to observe, from the twelfth report of the directors of the Oriental Inland Steam Company, that the progress of this traffic is very satisfactory. The company's steamers are now at work in various directions, both on the Indus and Sutlej, and on the Ganges; and the prospects are said to be most encouraging, notwithstanding the withdrawal by Sir Charles Wood of the subsidy of 5,000*l.* a year, in consequence of the letter of the agreement having failed by accident to be kept, although in spirit and endeavour the company had done all that seemed to be requisite in sending out vessels to meet the requirements of the agreement with the Government.

Great Fire.—On the 26th inst., a very extensive conflagration took place on the premises of Messrs. C. Cave, Williams, & Co., railway and coach contractors, New Cross, Deptford. The fire was discovered in their large manufactory, where they construct the carriages for the London and Brighton Railway, a brick building, nearly 300 feet in length, by 40 feet and 70 feet wide, two stories in height, and surrounded with other buildings. The fire was not extinguished until the premises were entirely destroyed. The buildings covered more than an acre of ground. When the roof fell in, some of the side walls followed, with a crash resembling in noise the discharge of a piece of ordnance. Tons in weight of bricks were hurled down in all directions, as well as some of the massive iron girders. These girders rested upon substantial iron pillars, firmly fixed upon brick and stone columns, which rested upon the ground of the basement: but, strong as the girders were, they were twisted by the intense heat into sundry forms, and kept continually falling into the burning mass.

Mitchel's Type Composing and Distributing Machines.—In the Machinery Department of the International Exhibition are two machines which we have examined cursorily, but with considerable interest. The "Compositor" is a triangular machine placed horizontally, and having a key-board along the base, and endless bands crossing to the hypothenuse or apex of the triangle. These bands, when the keys are worked, carry types to another running along the apex or hypothenuse, and which conducts the types to their destination, where they are arranged in long lines for subdivision by hand into lines of the required length. The "Distributor" is a small circular machine, which excites even more interest than the "compositor." It is self-acting, and requires only the attention of a boy. The "compositor" is said to do the work of four men when two are engaged upon it; and the "distributor," it is said, re-arranges 8,000 letters an hour. Both machines have been worked for several years in America, and have recently been introduced into the establishments of Messrs. Spottiswoode and others in this country. Various books have been set up by the "compositor"; and it is stated that by it one boy can do as much work as two journeymen by hand; and that by the "distributor," a boy, after a week's practice, can distribute as much type as a journeyman by manual labour. The machines, therefore, can be worked with considerable pecuniary profit.

Halifax Borough Engineer. — To prevent any wrong inference from the paragraph under this heading in our last, we may say that the additional appointments that have been made were recommended by the borough engineer, Mr. Stevenson, himself, as much for his own comfort as the good of the town; and that even the definition of duties of each officer was prepared by him.

The Alleged Discovery at Ayott St. Lawrence, Herts.—The detailed account of Roman remains found at Ayott St. Lawrence, it appears, is a stupid falsehood imposed upon the press by some idle scamp, who must be practising forgery as an introduction to the colonies; for he did not hesitate to give a truthful gloss to his silly lie by forging the signature of Mr. Walcotte, the curate of Ayott St. Lawrence.

Fatal Explosion of a Metal Casting.—At Kirkstall, near Leeds, an explosion of metal has occurred at the Kirkstall Forge, in casting an anvil block. About twenty men were engaged in the work, and seven were burnt and one killed. The casting would have been 9 tons 5 cwt. in weight, and it was destined as an anvil block for a steam hammer. The "core" appeared to be dry, and the mould was 4 feet in depth, and composed of green sand. At the inquest a moulder said he believed that the "vent" had got "struck." At the bottom of the mould there were vents to allow the foul air to escape. The jury were of opinion that some further evidence of a scientific nature was required.

Ornamentation of Churches.—"You will say, 'What has the house of God to do with ornament?' My answer to that is this:—'Go to your mountains and pick me up a flower that is not an ornament.' God never made a thing that was not beautiful. And up in that great International Exhibition, what are all your beauties there, but poor imitations of the beauties of the Divine work? The finest loom the most ingenious man ever made never wove a carpet such as I see in Lochlee, the Highland glen where I spend two months in the year: the finest work ever man made is not to be compared with the simple lily, with the blushing rose, with the golden broom! Yes, God has poured beauty on everything he made; and I say it is a right and proper thing that the House of God should be such as not to offend the taste that God has given me."—*Rev. Dr. Guthrie at Blair Athol.*

A Storm in Algiers.—A hurricane took place, on the 10th instant at mid-day, doing much damage to the town of Algiers. The military hospital of the Dey had the walls cracked and some of the beds scattered 150 mètres off. The dormitory of the Sisters of Charity was completely destroyed, and nearly all the trees in the garden uprooted or broken. The loss is estimated at 40,000f. The undertakers' plant for burying the dead (rather an important matter in Africa) is destroyed;—value, 21,000f. Twenty diligences were crushed in the establishment of the Messageries Générales, by the fall of the sheds. The Jardin Marengo has suffered considerably: the trees and shrubs, remarkable for the luxuriance of their growth, have been destroyed, and the bust of Napoleon I. broken to pieces. The storm only lasted twenty minutes, but the full extent of damage done during that short period cannot at present be ascertained. Some injury was done to persons, and one was killed. Since the 15th inst. the passenger service has been opened on the line from Tarbes to Bagnères-de-Bigorre.

Collyhurst, Manchester, Albert Memorial Schools. — The foundation-stone of these schools was laid on the 23rd inst. The main building contains, on the ground-floor, the boys' school; and the girls's school on the first-floor; each 46 feet by 30 feet, and having class-rooms; 22 feet by 19 feet 6 inches; height, 29 feet 6 inches to ridge. The infants' school, adjoining, is 50 feet by 20 feet, and 22 feet 9 inches height to ridge, with class-room, 15 feet by 15 feet 6 inches. The building is Gothic, with open-framed roofs. The elevations are in brickwork, with bands of blue Staffordshire bricks; the principal one being relieved by an ornamental belfry, with the inscription "Albert Memorial Schools." These schools will accommodate 195 boys, 205 girls, and 150 infants, with spacious play-grounds for each. The site, which contains 1,500 square yards, has been given by Sir Oswald Mosley, bart., as well as land adjoining for a church, which will shortly be erected. The buildings are being erected by Messrs. Clark & Jones, builders, Manchester, for the sum of 2,100*l.*, under the superintendence of Mr. John Lowe, architect, of Manchester.

The Fire Observatory at Hodges' Distillery.—This engineering work, designed by Mr. C. B. King, the consulting engineer of the firm of Hodges & Co., distillers, has been completed and inaugurated. By ascending the observatory, as we some time since noted in the *Builder*, the reflection of a fire can be seen from the Surrey side for miles distant, and the exact locality easily picked out. The building is 130 feet high, and is ascended by a set of "differential pulleys" which haul up a cage; and the balcony at the top will hold six persons: this balcony was hoisted to the top of the building in one piece, and then dropped into similar lengths, and there secured to a wrought-iron foundation plate. The builders were Messrs. Lewis & Stockwell, of the Barking-road.

Sawing down Trees.—A machine has been invented by Mr. L. S. Alder, of Cleona, Indiana, for sawing down trees, which can be readily adjusted to suit different occasions. The invention consists in the arrangement of a longitudinally sliding-frame, provided with a steam cylinder, a feed motion, and the necessary pulley to give motion to the saw in combination with a truck running on wheels, in such a manner that the frame can be readily brought to the desired locality and position; and that, by the action of the steam-cylinder, the saw receives its desired motion. It consists, further, in combining with each longitudinally sliding-frame a series of rotary adjustable discs, in such a manner that the saw, together with the driving-pulley and feed-motion, can be set to any desired angle.

Effects of a False Alarm in Church.—A dreadful scene of confusion has just taken place at Saint-Nicholas, in Belgium, while the church of Notre Dame was crowded with persons attending divine service. A noise of broken glass was heard, and a panic at once seized on the congregation, every one imagining that part of the building was falling. They rushed to the only door that was open, and there a terrible crush took place. The passage was speedily blocked up by persons falling and getting trampled on, the pile of bodies soon reaching to almost half the height of a man. The number of persons injured is considered large, and one woman died soon after. The alarm appears to have been caused by a stone, thrown from the outside, having broken through a pane of glass, and then fallen into the church.

TENDERS.

For alterations at Kent House, Blackheath. Mr. H. J. Lanchester, architect. Quantities supplied:—

Sands	£1,625	0	0
Adams & Son	893	0	0
Penny (accepted)	868	0	0

For house and shop, 104, High-street, Camden Town, for Mr. A. Sidney. Messrs. Gardner & Co., architects. Quantities supplied:—

Oughton	£376	11	0
Rowe	373	0	0
Westrope	357	0	0
Scrivener and White	334	0	0
Stevenson (accepted)	320	0	0

For building warehouse, Little Carter-lane, City, for Mr. Farlow. Mr. W. Nunn, architect:—

Downs	£7,132	0	0
Newman & Mann	6,695	0	0
Pattrick	6,542	0	0
Rider	6,540	0	0
Brass	6,498	0	0
Fish	6,390	0	0
Coleman	6,369	0	0
Lawrance & Son	6,340	0	0
Wills	5,694	0	0
Hart	5,666	0	0

For rebuilding premises, No. 3, Mincing-lane, City, for Mr. E. H. Moses. Mr. N. S. Joseph, architect:—

Lucas, Brothers	£5,290	0	0
Lawrance	5,183	0	0
Axford & Co.	5,112	0	0
Trollope & Sons	5,084	0	0
Ashby & Horner	5,080	0	0
Ashby & Sons	5,025	0	0
Newman & Mann	4,997	0	0
King	4,995	0	0
Piper & Wheeler	4,932	0	0
Brown & Robinson	4,931	0	0
Brass	4,693	0	0

For alterations and additions to No. 37, Tufnell-park-road, Holloway, for Mr. McLaren. Mr. Jasper Cowell, architect:—

Glenn	£396	0	0
Newman & Mann	372	0	0
Barnes	180	0	0

For additional room and warehouse at rear of house, 29, South-street, Bethnal-green, for Mr. T. Bradbrook. Quantities not supplied:—

Murdock	681	0	0
Forrest	533	0	0
J. Perry, jun.	430	0	0
Wire	397	0	0
Cave	377	0	0
Limmore	372	0	0
Kirk	335	15	0

For the erection of an infant school at South Hackney, Middlesex; Mr. G. H. Simmonds, architect:—

Turner	£497	0	0
Glaskin	485	0	0
Norris	467	0	0
Fox	450	0	0
Perry	425	0	0

For the erection of a building, with a shaft, in Whitechapel. Mr. G. H. Simmonds, architect:—

Ashby & Horner	£2,420	0	0
Read & Son	2,289	0	0
Jacobs	2,257	0	0

For schools and teachers' residence at Billington, near Leighton Buzzard. Mr. Frederick Gotto, architect:—

Bowden & Cheshire	£523	10	0
Dawson	510	0	0
Adams	495	0	0
Garside	489	5	0
Holdstock	438	14	0
Edwards	435	19	0

For the Girls' School in the London-road, Tonbridge Wells, in continuation of the Boys' School, recently built. Mr. W. Bond, architect:—

Pink	£565	0	0
Noakes	555	0	0
Wells	546	18	6
Putelleeden & Walker	517	6	4

For alterations at St. Ethelburg Church, Bishopsgate. Mr. R. J. Withers, architect:—

Tracey & Co.	£406	0	0
London	404	0	0
Axford & Co.	397	0	0
Sanders, Brothers	394	0	0
Pritchard & Sons	391	0	0
Sharpington & Cole	383	0	0

For a werehouse in Perry's-place, Oxford-street, for Messrs. Jackson. Mr. F. Herring, architect:—

Mansfield	£1,792	0	0
Clements	1,719	0	0
Tracey & Co.	1,534	0	0

For Public Offices, for the Basford Local Board. Mr. J. B. Heard, architect:—

Johnson	£2,080	0	0
T. & F. Simpson	1,922	0	0
Simpson & Layman	1,920	0	0
Slight	1,868	0	0
Barker	1,825	0	0
Cargill	1,750	0	0
Dennett	1,725	0	0
Acton	1,677	0	0

For taking down and re-erecting No. 117, High-street, Marylebone, for Mr. George Greenhill. Mr. Gordon Stanham, architect. Quantities supplied:—

Sage & Panter	£1,354	16	0
Henson	1,111	0	0
Bird	962	0	0
Faulkner (accepted)	917	0	0

For external painting, &c., to the St. George's Workhouse, at Little Chelsea. Mr. Gritten, architect:—

Smith & Co.	£426	0	0
Morris, Brothers	350	0	0
Sapwell	319	0	0
Woodruff	300	0	0

Repaving the yards at Mount-street Workhouse:—

Smith & Co.	£140	0	0
Morris, Brothers	100	0	0
Sapwell	88	0	0
Woodruff	85	0	0

For roads and drains, Gipsy-hill, Norwood. Mr. Messenger, architect:—

Bridges	£1,230	0	0
Simms	990	0	0
Baker	988	0	0
Leeks	900	0	0
Carter	899	0	0
Rogers	865	0	0
Pound	853	0	0
Mallows	800	0	0
Shawn	770	0	0
Harland	760	0	0
Symes	750	0	0
Porter	747	0	0
Bull	690	0	0

For work in alterations, fittings, &c., at the Jews' Hospital, Lower Norwood, Surrey. Messrs. Tillott & Chamberlain, architects. Quantities supplied:—

Myers & Sons	£2,134	0	0
Ashby & Sons	2,064	0	0
Rider	2,054	0	0
Brass	2,007	0	0
Piper & Wheeler	1,965	0	0
Wills	1,892	0	0
Fish	1,858	0	0

For Hove Church, Brighton. Mr. James Woodman, architect:—

Ellis	£4,761	0	0
Cheesman	4,640	0	0
Sharpington	4,587	0	0
Fabian	4,580	0	0
Reynolds	4,490	0	0
Barnes	4,487	0	0
Cane	4,197	0	0
Simms	4,000	0	0
Sawyer	3,989	0	0
Anscombe	3,815	0	0

For the extension of the gasworks at Hampton Wick, for the Hampton Court United Gas Company. Plans prepared by Mr. R. P. Spice, gas engineer:—

Sawyer	£900	0	0
Partridge & Crutch	864	17	0
Simms	840	0	0
Hall	832	0	0
Jacklin & Towers	825	0	0
Wheatley	788	0	0
Bradley & Roberts	756	18	0
Reedkin	735	0	0
Macrostie	721	0	0